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GASTROINTESTINAL AND FOOD ALLERGY

Diagnosis and Treatment

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Gastrointestinal allergy is a clinical manifestation of allergic involvement of the gastrointestinal tract, resulting from direct contact of the mucous membrane with an allergen. However, a gastrointestinal manifestation of allergy may follow exposure to allergens which enter the body through other routes, such as the respiratory tract.

"Food allergy" and "gastrointestinal allergy" are not synonymous terms, although gastrointestinal allergy usually results from contact with food allergens. Such an allergen may also produce asthma, eczema, migraine, or other clinical manifestations of allergy.

Food allergy was noted as early as 75 B.C.; and it was Hippocrates who stated that "Cheese is not always tolerated by all men." Lucretius wrote, "One man's food is another man's poison."

Many competent investigators in the field of allergy[1] have estimated that the incidence of gastrointestinal allergy in the general population ranges from 3.5 to 5 per cent, and our experience supports this estimate. Andresen[2] has found some evidence of food allergy in as many as 25.7 per cent of those patients with gastrointestinal disturbances. Gastrointestinal allergy may occur alone, or in combination with other allergic manifestations, or coincidentally with organic lesions.

Clinical manifestations of gastrointestinal allergy usually result from the ingestion of foods, drugs, or beverages. These symptoms have been known to follow the oral administration of certain pollen and other extracts, serums or drugs, or the inhalation of certain odors.

Presented before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 3, 1950.

From the Thomas Clinic, Richmond, Virginia.

Symptoms

Any part of the gastrointestinal tract, as well as its appendages (liver, gallbladder, pancreas, and so forth) may be subject to transitory, variable, and reversible allergic reactions. The symptoms of gastrointestinal allergy may mimic those of any intra-abdominal lesion, especially irritable colon, "colitis," peptic ulcer, gallbladder colic, or cholecystitis. These reactions may be acute or chronic, mild or severe. Fatal reactions have been observed in infants and children.

The symptoms of allergic reactions of the gastrointestinal tract are quite numerous. Rowe[3] lists the following: canker sores, distention, belching, epigastric heaviness, "sour stomach," pyrosis, nausea, vomiting, diarrhea, mucous colitis, constipation, "gas in the bowels," pruritus ani, pain and soreness in various sections of the abdomen, and general symptoms of instability, fatigue, and nervousness. The lack of a definite and characteristic clinical picture makes the diagnosis of gastrointestinal allergy difficult in many cases.

Symptoms are affected to some extent by the age of the patient. One of the most common allergic symptoms in childhood is abdominal pain, which usually occurs in combination with other symptoms. Not infrequently we observe mild abdominal pain accompanying an attack of asthma or urticaria, This is of little significance, however, since it may be muscular in origin, and produced by coughing.

Nausea and vomiting vary in severity; some cases are characterized by spitting or regurgitation, while other patients have a severe and projectile type of vomiting comparable with that seen in pylorospasm or

stenosis. Diarrhea is not an uncommon symptom of acute attacks in children, but one seldom observes in children the recurrent type of diarrhea noted in adults. Acute intestinal hemorrhage may occur in abdominal allergy.

Areas of Involvement

The type of reaction is probably similar to allergic reactions occurring in other tissues. The antigen-antibody reaction in the sensitized cells of the gastrointestinal tract produces lesions characterized by increased capillary resistance, edema, and diapedesis of the red cells to the extent of hemorrhage. There is spasm of the smooth muscles. The secretion of mucus is increased; and eosinophils may be observed to infiltrate the area or to be present in the mucus.

Thomas and Renshaw[4] made proctoscopic observations of allergic reactions in the mucosa, and observed test sites of the rectal valves which could be easily identified, noting changes in color, vascularity, edema, and whealing. These reactions were graded 1 to 4 plus according to the amount of erythema, edema, engorgement of the vessels, and hemorrhage present. Symptoms such as cramps and abdominal distress sometimes resulted from the tests, and severe asthma was seen in one instance.

The portions of the gastrointestinal tract which are most often subject to allergic reactions are the lips, mucous membrane of the mouth, esophagus, stomach, small and large bowel, rectum, and anus. Among the clinical manifestations which may be observed are cheilitis or herpes labialis, canker sores or stomatitis, coated tongue, and angioneurotic edema of the lips, the tongue and mouth, the pharynx, esophagus, stomach, or large and small intestine. Sir William Osler[5], in 1927, found local areas of edema in the bowel wall at operation in a patient with acute abdominal angioneurotic edema.

Diagnosis

The diagnosis of gastrointestinal allergy is still primarily one of exclusion. Usually one or more associated allergic manifestations can be observed, or a history of allergic disease obtained. In the differential diagnosis, one must consider organic diseases such as appendicitis, cholecystitis or ulcer, and certain common conditions characterized by spasm of the cardia, pylorus or colon. Gastrointestinal allergy may mimic other diseases, and one might find coincidentally organic difficulties such as atrophic gastritis, biliary dyssynergia, anal fissure, and postoperative adhesions.

Thomas and Wofford[6] observed that eructation was the most frequent complaint encountered among 134 patients with gastrointestinal allergy. Abdominal distention, distress, and abdominal pain occurred with equal frequency in approximately 62 per cent of patients with gastrointestinal allergy. Diarrhea and cramps were observed in approximately one third of the patients and eighteen per cent had a combination of symptoms. No single specific symptom was noted as being characteristic of gastrointestinal allergy; however, most of the patients complained of "indigestion."

When the symptoms of gastrointestinal allergy are suspected, one must pursue the same line of evaluating the etiologic factors that is necessary in the other allergic diseases. A detailed history is essential, and one must differentiate symptoms of gastrointestinal or food allergy from those of food intolerance. We know that gastrointestinal irritation and gas result from such foods as radishes, onions, cucumbers, and cabbage. These symptoms are not those of sensitivity, as they frequently occur in nonallergic individuals. One must also differentiate between food allergy and intolerance to fats and sugars resulting from abnormalities of the digestive secretions. Occasionally gastrointestinal allergy results from the ingestion of such simple or stable foods as milk, wheat, and egg. In such cases a repeated occurrence of symptoms may be observed, and after a little clinical experimentation with foods, symptoms may be produced at will.

A complete physical examination is important in order to exclude other nonallergic conditions. Sensitivity tests should be performed, but one must not incriminate a food until its etiologic importance has been proved by clinical trial. A further step in diagnosis is the keeping of a food diary.

Roentgen examination, gastric analysis, gallbladder drainage, and examination of the stools may reveal worth-while information. Moore[7] has stated: "Nearly every organ whose function and structure are demonstrable in the normal person by the roentgen ray can be shown to reveal changes due to allergy. But these changes are not specific, they may be transient and variable and may be produced by other causes." In making roentgen studies of the gastrointestinal tract,

it is important to be certain that the initial barium suspension contains no possible allergen. Later, a suspension of barium containing allergens should be given, and the roentgenograms repeated.

According to Swenson[8], "The positive roentgen findings of allergic individuals are: (1) gastric retention; (2) giant mucosal relief pattern (edema); (3) pylorospasm; (4) hypertonicity and hyperperistalsis of the intestine; and (5) segmentation of the lower small bowel . . . According to the majority of observers the most constant of these x-ray findings is gastric retention and edematous relief pattern." Hypermotility is variable. Coincident with the ingestion of a food allergen, the patient may develop asthma[9].

Treatment

The treatment of gastrointestinal allergy consists essentially in eliminating the offending food, or occasionally a drug or inhalant, which may be a specific causative factor. Oral desensitization is of extremely limited value, and in many hands questionable. Symptomatic treatment is similar to that employed in nonallergic gastrointestinal conditions, and includes the control of hypochlorhydria or hyperacidity and the use of certain antispasmodics, including atropine, belladonna, and the barbiturates. In acute abdominal crises, epinephrine in a 1/1,000 solution may be administered hypodermically, or ephedrine may be given by mouth. Antihistamine drugs may be used to offer symptomatic relief and to improve the patient's tolerance for certain foods.

Other allergic manifestations must be treated concurrently with gastrointestinal allergy. Desensitization and hyposensitization with inhalants, molds, pollens, or bacterial vaccines should be employed, and local treatment should be given for skin manifestations.

Case Reports

I wish to illustrate by a group of case reports the following types of allergic involvement of the gastrointestinal tract: aphthous stomatitis, cheilitis, angioneurotic edema of the soft palate, nausea, projectile vomiting, abdominal cramps, rectal pain, hemorrhage from the gastrointestinal tract, and pruritus ani.

Case 1. Herpes of the lips and angioneurotic edema of the mouth and throat

A 29 year old housewife complained of blisters on her lips when she ate watermelon, and angioneurotic edema of the mouth and throat after eating melons and strawberries. In addition, she experienced hives after eating oranges. The above reactions could be produced at will by the ingestion of these foods.

The patient also had perennial bronchial asthma, with seasonal exacerbations due to trees and grasses, and a frank seasonal hay fever in the spring, summer, and fall. Hyposensitization and avoidance of the food allergens satisfactorily controlled her symptoms.

Case 2. Aphthous stomatitis

A white female, aged 25, gave a history of canker sores which had grown progressively worse over a period of one year. There had been no response to antihistamine drugs or vaccination treatment. Improvement was noted when she eliminated coffee, eggs, peanuts, and chocolate from her diet. At one time the canker sores were controlled with penicillin therapy, but later recurred.

The patient responded satisfactorily to dietary restrictions and hyposensitization with an inhalant, mold, and bacterial vaccine. Definite exacerbations followed the ingestion of cocoanut macaroons, black pepper, and Italian bread. These were not recognized initially as offending allergens.

The following 3 cases of gastrointestinal allergy occurred in the same family in three generations—grandson, mother, and maternal grandmother.

Case 3. Recurrent canker sores, abdominal discomfort, vomiting, halitosis and constipation

A 5 year old boy had begun vomiting shortly after birth, while he was on breast milk. He was placed on canned milk, which was well tolerated. He had infantile eczema following the ingestion of egg and apple and orange juice at 6 months. Recurrent canker sores followed the ingestion of chocolate. Apples definitely caused diarrhea, as did fresh corn and peanuts. Halitosis occurred in the absence of a gastrointestinal upset or nasal congestion. Other allergic symptoms were those of perennial allergic rhinitis and seasonal hay fever.

After a year of observation and treatment, the patient's gastrointestinal symptoms were definitely improved, although it was still impossible for him to ingest certain of the foods. He did not have further eczema, and his respiratory allergy was satisfactorily controlled with hyposensitization.

Case 4. Alternating diarrhea and constipation

A 30 year old housewife complained of alternating bouts of constipation and diarrhea over a period of twelve years, the diarrhea being associated with gas, griping pains, nausea and occasional abdominal tenderness. The diarrhea, which tended to occur every four to five days, usually lasting two days, was characterized by an average of three soft to liquid stools daily. She stated that precipitating factors included beer, lima beans, legumes, corn, bran, onions, broccoli, apples, and in addition paint fumes and certain proprietary drugs including Lextron Ferrous and thiamine chloride. She complained of considerable gas after taking vitamin B complex. In addition to the above symptoms, this patient had a frank perennial allergic rhinitis complicated by secondary headache, a history of urticaria, a questionable dermatophytide reaction of the hands, chronic nervous fatigue or exhaustion, and urticaria secondary to liver injections.

Sensitization studies enabled us to confirm this patient's suspicions of certain foods, and to determine additional food intolerances. The patient was able to control her gastrointestinal symptoms to a certain extent by dietary restriction. There was a large neurogenic and domestic factor in this case, which made the problem rather difficult to handle.

Case 5. Intestinal cramps and nausea

This 46 year old housewife complained of abdominal cramps, nausea, much gas formation, and bloating and pain. She stated that milk, cheese, and beans aggravated her symptoms, and improvement resulted from the elimination of these foods. Gastrointestinal roentgenograms showed some pylorospasm. Gastric analysis showed no free acid, and a total acid ranging from 0 to 10 degrees following a fractional test meal. Nasal smears showed 40 per cent eosinophils. Other proved diagnoses were migraine, allergy to Benadryl, hay fever in the spring, a history of urticaria, and bronchial asthma, menopausal symptoms, and perennial allergic rhinitis.

Management included dietary restrictions, antispasmodics, estrogenic hormones by mouth, and hyposensitization with inhalant, mold and pollen extracts. The patient was studied again after one year's management, and was followed for another two-year period. She showed only a fairly satisfactory response to treatment, because of the multiplicity of her complaints and her inability to follow the detailed program of management.

Case 6. Abdominal cramps and diarrhea

A 35 year old truant officer gave a history of mucous colitis following the ingestion of oatmeal, and reported that vegetables, particularly peas and corn, caused abdominal cramps and diarrhea and would pass undigested. Lettuce and fish also produced gastrointestinal distress, which came on from thirty minutes to one hour after eating, and was characterized by nausea, gas, belching, distention, fullness, and pain. Some stools contained stringy mucus. This patient had quite severe asthma of combined intrinsic and extrinsic type which was aggravated by physical agents. She also gave a history of recurrent attacks of asthmatic bronchitis and allergy to sulfathiazole.

Gastrointestinal distress was controlled by dietary restrictions, incorporated with a program of bowel management, including the use of antispasmodics. Partial relief from bronchial asthma was obtained by avoidance of the offending allergens and hyposensitization, including the use of autogenous dust extracts.

Case 7. Cramps, nausea, and vomiting

A 7 year old girl had had asthma for the first time at the age of 5 months, following whooping cough and pneumonia. Foods were not related to the patient's asthma; however, following the ingestion of milk, egg, or fish, the patient immediately had abdominal cramps, nausea, and vomiting. Infantile eczema was aggravated by ingestion of egg as well as by contact with wool. Although the patient showed a negative reaction to scratch tests with the seafoods, eggs and milk, intracutaneous tests with these foods caused a constitutional reaction in a period of less than five minutes, producing severe asthma, cyanosis, generalized urticaria, and profuse rhinitis. These symptoms were controlled with 0.15 cc. of epinephrine.

Case 8. Abdominal cramps and constipation

A 3 year old boy, normal at birth, had his first abdominal cramps at the age of 4 weeks, following the ingestion of milk. Various diets were tried. Homogenized milk begun at the age of 11 months aggravated his symptoms, and Mull-Soy was not tolerated. However, peas, carrots, green beans, squash, beets, and other vegetables caused no trouble. The mother was able to prove definite intolerance to spinach, grapefruit, chocolate, milk, and milk products. A typical attack started three to four hours after a meal, when the patient would start crying with abdominal pain. Sometimes a food might be tolerated for one or two days before causing the patient distress. This patient was able to take the following drugs without gastrointestinal symptoms: Benadryl, ascorbic acid, oleum percomorphum, aspirin, calcium gluconate, paregoric, Syntropan, sulfonamides, milk of magnesia, and various bulk laxatives.

Case 9. Abdominal pain, diarrhea, colic and vomiting

A 3½ year old child had first shown evidence of allergy at the age of 6 weeks, when the ingestion of orange juice produced colic three or four hours later, followed by diarrhea. The following day she had a erythematous papular dermatitis of the trunk. Several formulas were tried, including breast milk, Carnation milk, Dextri-Maltose, and cow's milk, but all produced episodes of colic. The introduction of spinach, tomato juice, and eggs into the diet produced diarrhea and vomiting. At the age of 6 months orange juice was again administered, with a resulting infantile eczema. About the age of 14 months, raw egg and chocolate were added to the milk, and resulted in a marked infantile eczema. Fish was added to the diet at 15 months without distress. Subsequently, some four months after the patient came under our care, the father gave her chocolate ice cream and she experienced a reaction of marked nasal congestion and wheezing.

The history further revealed perennial allergic rhinitis and asthmatic bronchitis. Later spring hay fever developed.

This is a frank case of gastrointestinal allergy in a child, complicated by other allergic manifestations resulting from a sensitivity to foods and pollens and from respiratory infections. Dietary restrictions were mandatory for the control of acute symptoms.

Case 10. Diarrhea, burning of the mouth and rectum

A 5 year old child had diarrhea following the ingestion of carrot, with a secondary rash over the buttocks and associated sneezing. The ingestion of spinach produced marked burning of the mouth, and later of the rectum. Peanuts caused definite angioneurotic edema of the face and eyes. Margarine produced angioneurotic edema. Chocolate, and bread containing soybean caused angioneurotic edema of the face and eyes. Marked diarrhea and angioneurotic edema of the eyes followed the ingestion of mayonnaise. Later the mother found that mayonnaise containing mazola oil was tolerated satisfactorily; she felt that cottonseed oil was the offending allergen in the mayonnaise which caused the reaction.

Sensitization studies and clinical trials revealed that the patient's problem was a combined food and inhalant allergy. Dietary restrictions satisfactorily controlled the gastrointestinal distress.

Case 11. Pruritus ani

A white boy, aged 8, had a history of asthma and perennial nasal symptoms since the age of 13 months, with seasonal exacerbations during the ragweed season. Pruritus ani and definite rectal irritation followed the ingestion of milk, and these symptoms were relieved when milk was discon-

tinued. In addition the mother reported that this child had definite exacerbations of asthma and rhinitis following the ingestion of prunes.

During an eighteen month period of observation, this patient had very few gastrointestinal symptoms. The control of his respiratory allergy was rather difficult, however. At one time the differential blood count showed 12 per cent eosinophils, and the nasal smear contained 95 per cent eosinophils.

Summary and Conclusions

The diagnosis of gastrointestinal allergy depends upon the exclusion of more common clinical entities, and proof by clinical trial. Therapy includes avoidance of the offending allergens and hyposensitization, as well as symptomatic treatment.

Eleven cases characteristic of the varied symptoms of gastrointestinal allergy have been presented. Most of these patients had additional clinical manifestations of allergy, as well as other types of allergy.

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Positive skin tests do not necessarily indicate clinical allergy. Just recently, I saw a little boy, aged nine years, who had diabetes. He looked like a child six years of age. His mother told me that, besides having diabetes, he was also allergic to a whole series of foods, according to skin tests, and that she had had to eliminate these foods from his diet. As a result, the boy was puny, underdeveloped and undernourished. I replaced all the "forbidden" foods in his diet, and he developed no allergic reactions. With a generous and well balanced diet and good control of his diabetes, he has made good clinical progress.—John, H. J.: Dietary Invalidism, Ann. Int. Med. 32:598 (April) 1950.

The continued responsibility for the care of a chronically sick person adds immeasurably to the education of a physician. It requires maturity to be able to recognize limitations, to avoid becoming angry because the patient does not get well, to avoid becoming discouraged or discouraging, and to continue to wish to help within the limits of one's ability. —John Romano, M.D., J.A.M.A., June 3, 1950.

PRESENT DAY TREATMENT OF ALLERGIC CONDITIONS

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The histamine concept is the most plausible explanation yet advanced for the allergic triad — mucorrhea, vasodilatation, and smooth muscle spasm. A perfect antidote for histamine has not been found. The numerous antihistamine compounds are only partially effective, and recent reports indicate that they are not as innocuous as was once supposed. Besides causing drowsiness, vertigo, nausea and tremor, plus many other minor symptoms, they have been reported to be responsible for convulsions and death[1], urinary obstruction[2], and agranulocytosis[3]. At best, they offer only symptomatic relief.

Convincing proof that histamine antibodies or tolerance to this substance can be produced by giving histamine in increasing doses or histamine azoprotein (Hapamine) has not yet been offered[4]. While some favorable reports have appeared, the results are not uniform.

Many new compounds of the epinephrine group are being produced and tested. The chief aim is to preserve the epinephrine effect and abolish undesirable side effects, such as elevation of the blood pressure and stimulation of the central nervous system.

The concept of the adaptation syndrome postulated by Hans Selye[5] may explain many of the unknown factors in allergy. Clinically, the general allergic state is manifested by eosinophilia, hypotension, unexplained weakness and fatigue, and uniform improvement following the injection of epinephrine. These four manifestations are also characteristic of the syndrome of adrenal insufficiency. Asthma, in particular, has been shown to respond favorably to ACTH and Cortisone. Perhaps a better understanding of allergy will come about through a study of the physiology of the adrenal cortex. It has long been known that asthma can be completely relieved by obstructive jaundice[6], and it was from the bile acids that Cortisone was first synthesized.

Allergic and Vasomotor Rhinitis

The antihistamine preparations are extensively used for the symptomatic relief of

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nasal allergy. The numerous articles that have appeared are in general agreement that two thirds or more of the patients are definitely benefited. Side effects vary according to the drug and the individual. Quite often, the drug which produces fewer side effects is also less effective in control of symptoms.

Each new antihistamine put on the market is usually hailed by the press as a new cure for hay fever. The public is led to believe that desensitization measures and general management of the allergic patient are no longer necessary. The fact that asthma eventually develops in approximately 30 per cent of the patients with allergic rhinitis makes it unwise to rely on symptomatic treatment alone, even though it is effective. More and more cases are being found in which the allergic rhinitis is fairly well controlled by the antihistamine drugs, until asthma develops; then they are quite ineffective.

Rhinitis due to overtreatment

Nose drops afford welcome relief from chronic nasal congestion. Mild preparations such as Neosynephrine in a 0.25 per cent solution, are best and should be used for only a short period of time. The more potent vasoconstrictors, when used over a long period of time, may produce in a normal person symptoms and signs indistinguishable from allergic rhinitis, and may aggravate the existing allergy in hypersensitive persons. Quite often it is difficult to persuade the patient that nose drops must be abandoned.

Contact sensitivity due to a chemical agent is illustrated by the following case:

A 47 year old minister was seen because of burning of the eyes, a nasal congestion, and a thin, watery discharge from the nose that "scalded" his upper lip. It was worse at night, especially when he was in his study. Examination revealed an allergic condition of the nasal mucosa, but routine allergy tests were negative. Closer questioning disclosed that he was using eye drops containing Merthiolate (Murine). Symptoms were reproduced by instilling the drops in his eyes, and a patch test with Merthiolate was positive. Symptoms disappeared after he discontinued the eye drops.

The relation of tonsils and adenoids to nasal allergy

Hypertrophy of lymphoid tissue in the nasopharynx is much more common in allergic than in nonallergic children. Removal of this tissue in children under 5 years of age, or removal without the institution of a program of allergic management usually is followed by prompt recurrence. Lymphoid nodules scattered on the posterior pharynx and around the tonsillar pillars enlarge with each respiratory infection and often produce a harassing cough, which may in time precipitate asthma[7]. This hypertrophied tissue can conveniently be removed by roentgen or radium therapy[8]. Surgical treatment is recommended for diseased tonsils, adenoids, purulent sinusitis, polyps, and septal deviation that causes mechanical obstruction.

Asthma

The lot of the asthmatic patient has been improved during the past decade. My own experience and information gained from others indicate that the severe and long drawn out cases of status asthmaticus seem to be on the decline. This improvement is due largely to the prompt and effective treatment of respiratory infections. Agents such as sulfadiazine, penicillin, streptomycin, Aureomycin and Chloromycetin are indispensable in the management of infectious asthma. What, at one time, amounted to a winter's siege of bronchitis and asthma may now be aborted in a period of days. However, simple asthmatic attacks may go into status asthmaticus because of overtreatment, improper treatment, or sensitivity to drugs employed.

A Gram stain examination should be done on the sputum to determine the predominating organism, as the above mentioned drugs show selective action. The gram-positive and gram-negative cocci, which are commonly encountered in respiratory infections, respond to sulfadiazine or penicillin, while bacillary infections such as Friedländer's bronchitis or pneumonia are best treated by streptomycin, Aureomycin, or Chloromycetin.

Revival of iodide therapy

The iodides are of undoubted value in the treatment of asthma. Their expectorant action, which thins the tenacious mucus, is certainly physiological. Iodides were the most popular drugs employed for the treatment of asthma before the era of adrenalin and aminophylline. The "Gay treatment" has recently focused attention on this neglected phase of therapy[9]. Unfortunately, the Gay formula contains arsenic, which has too many dangerous potentialities for routine use. Insufficient experimental work has been done to determine whether arsenic is an essential ingredient.

With this in mind, I have treated 47 patients with potassium iodide and Fowler's

Table 1

No. Cases	Treatment	Improvement			Reactions	
		None	Good	Excellent		
62	K.I.	11	44	7	Acneform eruption Rhinitis	3 2
47	K.I. and Fowler's Solution	6	32	9	Edema of lids Nausea	2 2
5	Fowler's Solution	4	1	0	None	

mixture*, and compared the results with those obtained in 62 patients treated with potassium iodide alone (table 1). To date, 5 patients have been treated with Fowler's solution alone. This is too small a group from which to draw definite conclusions, but the results, as shown in table 1, have not been striking. The 114 patients included in this study are those who had failed to give a satisfactory response to the usual routine of desensitization, elimination, and the administration of agents commonly used for symptomatic relief, such as ephedrine, aminophylline, and related compounds.

It is apparent from this study that the percentage of good results obtained in the treatment of asthmatic patients can be increased by adding potassium iodide alone or a combination of potassium iodide and Fowler's solution. Response to this treatment was prompt, if it occurred at all. More patients are to be treated with Fowler's solution alone before any definite conclusions are drawn, although only one out of the 5 so treated has shown any improvement. It seems extremely doubtful that any synergistic action exists between iodides and arsenic.

Antihistamine therapy

The antihistamine drugs are relatively ineffective in treating asthma. They sometimes relieve attacks in children, however, and when they are given at bedtime, many patients report a better night's rest. Whether this is due to the prevention of asthmatic attacks or to their hypnotic effect is controversial.

Continuous intravenous aminophylline

Disability from status asthmaticus may be shortened by employment of this method.

Aminophylline (1 Gm. dissolved in 1000 cc. of a 5 per cent solution of glucose or saline) is administered by continuous intravenous drip (2 liters per day) until the dyspnea is relieved and the chest becomes clear. The rate of flow must be carefully controlled to avoid distressing nausea, headache, tachycardia, and a fall in blood pressure. Two to five days of treatment are usually required to break the attack.

Demerol

This narcotic, given hypodermically in a 50 mg. dose, does not carry the dangers attendant on morphine and is often of value in the more severe attacks. Caution must be exercised in order to avoid addiction resulting from too frequent or too prolonged use.

Migraine

The migraine problem continues to be attacked symptomatically with vasoconstrictors and vasodilators. The etiology of migraine is obscure in the majority of cases. Heredity undoubtedly plays a part; we are all familiar with cases of migraine occurring in mother and daughter. Allergic patients are more prone to have migraine than nonallergic individuals.

Food allergy is considered a major cause; yet this factor is proven in only a small percentage of cases. Infection, which is a leading cause of vascular allergy manifested by urticaria and angioneurotic edema, is usually absent in migraine. Many attacks can be attributed to emotional upsets.

Ergotamine tartrate (0.25 mg.) given hypodermically early in the attack is almost a specific for true migraine. The combination of ergotamine tartrate and caffeine (Cafergone) has been reported as more effective than ergotamine alone, when used orally. The value of appropriate psychotherapy in migraine should not be underestimated.

* For adult patients, the following prescription was used:

	Gm. or cc.
Potassium iodide	6
Fowler's solution	5
Elixir phenobarbital	30
Saccharin	.06
Aqua q.s. ad	240

Sig: Tablespoonful t.i.d. first week
Tablespoonful b.i.d. second and third weeks
Tablespoonful daily fourth week and thereafter for 3-4 months or possibly longer, depending on improvement and absence of toxic symptoms.

Urticaria

The symptoms of vascular allergy, such as urticaria and angioneurotic edema, respond well to the antihistamine drugs. In a given case of urticaria, the following possible factors should be investigated: (1) infection, (2) medications, (3) food allergy, and (4) neurogenic factors. Urticaria occurring secondary to infections presents a difficult problem. An exacerbation during the first few days of treatment may represent a sensitivity to sulfonamides or antibiotics, or may result from a Herxheimer reaction.

The chief value of the antihistamine drugs in the treatment of urticaria is to keep the patient comfortable until the cause is discovered and eliminated.

Atopic Dermatitis

Eczema

Infantile eczema is still the problem child of allergy. In general, treatment is about as unsatisfactory and uncertain as it was ten years ago. An occasional good result encourages us just often enough to keep us from giving up.

Neurodermatitis

This condition has its parallel in status asthmaticus, being often resistant to every form of therapy. Neurodermatitis occurs more often in allergic individuals, giving that unhappy combination of allergy and "nerves." The emotional factor is predominant, but the patient, relatives, and some doctors consider nervousness secondary to the dermatitis. A review of 12 typical cases seen recently revealed several points which might be labeled "the neurodermatitis pattern":

1. *Emotional factors out of proportion to the rash are present.* The cutaneous discomfort often precedes the dermatitis. The mental state of the patient resembles an agitated depression. After several weeks of rubbing and scratching, the skin appears as a piece of thick leather.
2. *The usual therapeutic measures fail* and often make the condition worse.
3. *Many overly concerned people are involved*—the patient's spouse, relatives, and nurses.
4. *The patient is usually uncooperative.*
5. *The patient has an unbearable sense of skin dryness* which does not respond to oils.
6. *The patient is refractory to sedation.* Enough sedatives may be given to render a normal person comatose; yet the average patient with disseminated neurodermatitis will stay awake throughout the night and scratch.

The treatment is mainly psychiatric. Poor results are to be expected if one does not take time to unravel the emotional problems. These problems are often quite apparent, but pointing them out to the patient and his family does little good. Frequent psychiatric interviews usually yield better results than dermatologic and allergic management.

The Common Cold and "Cold Cures"

Treatment of the common cold is no longer under medical jurisdiction. The public is being exploited through the press and radio, and self-treatment is preceded by self-diagnosis. The average layman includes the following conditions under the term "cold": grippe, influenza, nasal allergy, sinusitis, adenoiditis, pharyngitis, tonsillitis, laryngitis, bronchitis, asthma, pneumonia, and congestive heart failure.

No objective data indicating that the antihistamines prevent or cure virus or bacterial infections are available. Allergists have noted that, in patients receiving antihistamine preparations for allergic rhinitis and urticaria, coryza develops with approximately the same frequency and severity as in the general population. This entire subject was reviewed recently by the Council on Pharmacy and Chemistry of the American Medical Association[10], and the following conclusions were reached: (1) The evidence so far presented should be classified as the honest opinion of the investigators but not as facts. (2) Until a scientifically acceptable study is performed, the true effectiveness of the antihistamine drugs in the control of the common cold cannot be evaluated.

Summary

Present day concepts concerning the etiology of asthma and the treatment of allergic and vasomotor rhinitis, asthma, migraine, urticaria, atopic dermatitis, and the common cold have been discussed and evaluated.

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ALLERGIC RHINITIS

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Allergic rhinitis with its various complications is one of the most common diseases of the upper respiratory tract[1]. Some of the rhinologists report that 70 per cent of the cases seen in their practice have an allergic basis[2]. Often only the complication is recognized and treated, while the primary allergic disease is ignored. The pathologic changes produced by allergy are reversible in children, and hence the results of treatment are better than with adults. The early diagnosis of allergic rhinitis in infants and children is very important, not only to make these children more comfortable but to prevent developmental defects, psychologic trauma, and progress of the allergic disease itself.

Symptoms and Signs

Often allergic rhinitis first manifests itself by nasal obstruction and stuffiness, which cause nursing difficulties[3]. Usually the mother next complains that "the baby has a cold every time he cuts a tooth." Later the nasal symptoms may be seasonal (in which case they are called hay fever), or more or less constant and hence designated as perennial allergic rhinitis. These symptoms may start at any time, the incidence perhaps reaching a peak during the second and third years. The majority of victims have symptoms before the age of 10. My youngest patient with typical pollinosis was 3 months old when the condition appeared.

The pathologic changes consist of local edema, hypertrophy, and hyperplasia of the nasal mucosa[4]. These changes produce constant or recurrent nasal obstruction and a thin, clear, watery, non-irritating nasal discharge. Often these patients seem to have a cold when they awaken, but by noon their symptoms have disappeared.

All symptoms do not appear in the same patient at the same time. Sneezing and itching of the nose, eyes, and nasopharynx are common. Many of these children develop mannerisms such as rubbing or wrinkling the nose, or facial grimaces due to the nasal discomfort. The nasal obstruction produces mouth breathing, which contributes to fatigue[5] and the development of dental deformities[6]. The younger the child when the allergy develops, the greater will be the deformity. The edematous mucous membrane can cause obstruction of the eustachian tubes, producing partial deafness and tinnitus. Disturbance of the sense of smell contributes to a poor appetite. Many children with allergic rhinitis have recurrent sinusitis and otitis media. Headaches due to obstructed sinuses occur frequently, and fatigue and general malaise are common complaints.

Perhaps the most constant sign in allergic rhinitis is the presence of an increased amount of mucus in the nasal passages, with an increase in the number of eosinophils in the mucus. The mucus is more gelatinous than normal, and the postnasal drip, with its disagreeable sensations and chronic cough, is created. Early in allergic rhinitis or in the presence of infection the turbinates are a dusky red, but later they become pale and boggy and develop a grayish blue color. The nasal obstruction prevents proper ventilation and drainage, so that bacterial infection enters the picture[7].

Often the acute attacks seem to be precipitated by fatigue, chilling, or an emotional disturbance. Sometimes a clue is missed if we ignore the mother when she says that a very mild exposure, such as swimming, sitting on the sidewalk, or being outdoors on a windy day produced the illness which brought the child to the doctor. A very slight exposure is enough to cause acute otitis media or other acute respiratory infections in the presence of an upper respiratory allergy.

Both the allergic process and the recurrent infections stimulate an overgrowth of lymphoid tissue. The enlarged tonsils and adenoids, in turn, increase the nasal obstruction and prevent proper drainage. With long continued insult the nasal mucosa hypertrophies

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and produces polyps, but this pathologic change is not as common in children as in adults.

Patterns produced by acute infections

According to Feingold[8], an acute infection in an allergic child produces one of two patterns of allergic manifestations, depending on the nature of the infection.

1. With pertussis, measles, chickenpox, mumps, Kaposi's disease, and the epidemic virus diseases, allergic symptoms are aggravated during the invasion period. A child with allergic rhinitis has more severe nasal symptoms. At the peak of these infections the level of allergy is lower than normal. With convalescence allergy recurs, and all the allergic signs and symptoms are more severe than before the onset of the disease.

2. With acute infections of the upper respiratory tract, there is no change in allergy during the invasion period. At the height of the infection, however, allergy is severely aggravated. The allergic symptoms associated with this type of infection do not respond to the usual medical management for allergy. The best response is observed after the use of sulfonamides or penicillin. As the infection subsides, allergic manifestations subside without any specific therapy directed toward the allergy.

Diagnosis

The diagnosis of allergic rhinitis is often delayed or missed when the child is first seen with a complaint which is a complication of the nasal allergy. A careful history, however, often reveals a hereditary background for allergic disease, and in many cases a past history of colic and eczema during infancy. In children who have had recurrent colds and repeated removal of tonsils or adenoids, an upper respiratory allergy should always be suspected. Cases of acute hay fevers which come with sudden onset at a definite time of the year—as, for example, during the ragweed season — are quickly recognized.

Roentgenograms which show some cloudiness of all sinuses are suggestive of allergy. The blood may or may not show an eosinophilia in allergic patients. Nasal smears, if repeated, show an increase of eosinophils in at least 70 per cent of the cases[9]. Polymorphonuclear cells may obscure the picture during an acute infection, but with convalescence eosinophils will occur. It is helpful to remember Dr. Glaser's suggestion "that continuous direct contact of the swab against the mucous membrane for at least one minute will almost always result in positive smears in the case of an allergic mucous membrane."[10]

The finding of increased numbers of eosinophils in the nasal smears is pathognomonic of nasal allergy, but a negative smear does not rule out this condition. Skin tests are of great diagnostic help if combined with a detailed history and close clinical observation. Pollens or some seasonal inhalants are the exciting factors in the hay fever group, and quite accurate diagnosis is usual in these cases. With perennial rhinitis many overlapping factors, such as house dust, infections, molds, and multiple allergens, make the picture quite complicated, and patience and time are required to make a complete and accurate diagnosis[11]. In many cases elimination diets or other trial-and-error methods are necessary to complete the diagnosis, especially when skin tests are not diagnostic[12]. Eye tests are useful in some hands[13].

Preventive Measures

Perhaps we have only grazed the surface in preventive medicine where allergic diseases are concerned. In any family with a history of allergy, the pregnant mother should avoid food excesses, and foods and contacts of the infant and young child should be carefully supervised. New foods should be added to the diet one at a time[14], with long intervals between additions. Household pets and house dust should be avoided in early life. In other words, the onset of allergic symptoms should be delayed as long as possible.

Treatment

Once the symptoms of allergic rhinitis have started, much can be done to alleviate suffering and complications.

The object of treatment is not only to make the patient more comfortable, but to prevent, so far as possible, the progress of the allergic condition and its complications or sequelae, especially asthma[15].

General measures

In the treatment of upper respiratory allergy in children, general management is very important. It is essential that the child be well nourished, even at the cost of some mild respiratory symptoms. Immunizations, adequate sleep, fresh air, sunshine, and a

happy, well adjusted environment are, if possible, more important for the allergic than for the nonallergic child. I always give these children, in addition to iron, a multiple vitamin preparation, such as Vi-Penta. It is important to help the family of an allergic child to plan their vacations. Even the best regulated allergic child may break down in the chilly atmosphere of "Old Baldy,"[16] with the double insult of forbidden cornbread and horse dander. Vocational guidance may prevent much unhappiness in later life.

Avoidance and hyposensitization

The patient should be removed from the allergen, if possible. In any case, if the allergen can not be eliminated or avoided, at least the contact with it can be minimized. In many cases where it is impossible to avoid an irritating inhalant during the day, the child can build up a tolerance to it by sleeping in a dust-free bedroom, so that he can live comfortably even in close contact with the offending allergen some of the time during the day[17]. A child can often tolerate a neighbor's dog in the yard, but would have constant nasal symptoms with a dog in the house. The same principle applies in the avoidance of foods to which the patient is sensitive.

Hyposensitization by injection of inhalants and bacterial vaccine has proven to be of great value. Active desensitization with foods has not been satisfactory, however.

Symptomatic treatment

During acute exacerbations mild decongestants give considerable comfort. Neosynephrine, a 0.125 to 0.25 solution in normal saline, is a great favorite. Recently a 0.5 per cent buffered solution of Pyribenzamine has been reported to give good results[18]. Caution must be observed in the use of local therapy, however, as long continued use of drugs often causes irritation of the nasal mucosa and continuation of nasal symptoms.

The antihistamine drugs have proven to be of great value in the relief of some symptoms of allergic rhinitis, but at best they are merely palliative. They should not be given over long periods of time, or when diagnostic tests are being performed. Most of these drugs cause some unpleasant side effects, such as drowsiness or dizziness[19].

Surgery and radiotherapy

Allergic patients are subjected to special surgical procedures much less frequently now than formerly, and certainly allergy is a nonsurgical disease. However, if an allergic condition has existed in the respiratory tract for any length of time, some secondary infection is nearly always present, and it must be remembered that allergic therapy will not give relief if organic defects such as hypertrophied lymphoid tissue are not removed or purulent sinuses drained[20]. Indications for tonsillectomy and adenoidectomy are the same in the allergic as in the nonallergic child[21]. The operation should be done after allergic therapy has been instituted, but not during the pollen season[22].

Gradually we have come to realize that simple surgical removal of tonsils and adenoids is not always sufficient for the allergic child. In fact, if hypertrophied nasopharyngeal lymphoid tissue reappears after careful surgical removal, we suspect an allergic basis. Many of these children obtain marked relief from the use of radium or roentgen therapy. This method of treatment should not be used until after allergic therapy is instituted, however. With proper management of the allergic state, much less surgery and radiation therapy are needed[23].

Antibiotics

A new era dawned in allergy with the introduction of the antibiotics. Often in allergic disease a vicious circle is established. The allergy lowers the resistance of the mucosa and interferes with ventilation and drainage, so that secondary infection obtains a foothold and, in turn, increases the allergic tendency. Penicillin and the sulfonamide drugs are valuable adjuncts. A nasal discharge which persists after the hay fever season may be due to sinusitis rather than ragweed sensitivity.

Summary

In diseases of the upper respiratory tract, allergy is the most important single etiologic factor. The history, physical examination, and cytologic studies of the nasal secretions are the basis of diagnosis. Skin tests and careful clinical observations will reveal the offending allergens in most cases. Perhaps preventive treatment begins before the child is born, with supervision of the pregnant woman's diet. Careful supervision of diet and environment during early life delays the onset of allergic symptoms. Once the allergens are discovered, a program of avoidance, hyposensitization and general hygiene, combined with antihistamines, local decongest-

ants, chemotherapy, and surgery and radiation therapy, as indicated, will enable most of these children to develop normally and to avoid many of the complications and sequelae of allergic rhinitis.

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Abstract of Discussion

Dr. Susan C. Dees (Durham): Bacterial vaccines are very helpful in many of these cases. I think that occasionally they fail because the child has a different bacterial flora with successive clinical infections, so that an autogenous vaccine obtained during one infection may not cover the situation for successive infections.

Dr. McLeod's description and presentation of this subject is one of the most comprehensive and lucid ones I have ever heard.

NORTH CAROLINA PREMATURE INFANT CARE PROGRAM

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RALEIGH

For some time the North Carolina State Board of Health and interested physicians have realized that entirely too many deaths occur among premature infants in this state. Deaths due to prematurity are responsible for a major part of the infant mortality in North Carolina, as well as in the United States[1]. If the infant mortality rate is to be reduced, some action should be taken to lower the number of deaths among prematurely born infants, and (2) to prevent premature births. This paper is devoted to a discussion of the former objective.

North Carolina's premature infant problem is especially great because this state has one of the highest birth rates in the nation. Since 1944 it has had a higher birth rate than the South or the United States as a whole (fig. 1). In 1947 the number of births in this state reached an all-time high—112,877 being reported. The provisional figure for 1949 was 109,071. In 1947 only four other states in this country had a higher birth rate than North Carolina. If we continue to have one of the highest birth rates in the nation, we can also expect a large number of premature births. For the past three years, the total number of births in North Carolina has not varied by much more than 4,000 from year to year.

The Department of Vital Statistics of the State Board of Health has shown that the infant death rate in North Carolina as a whole is slightly above the average for the United States; however, the infant mortality among the non-white population is lower in North Carolina than in the United States. North Carolina's infant mortality rate also compares favorably with rates in the other Southern states. Prematurity accounts for

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From the North Carolina State Board of Health, Raleigh.

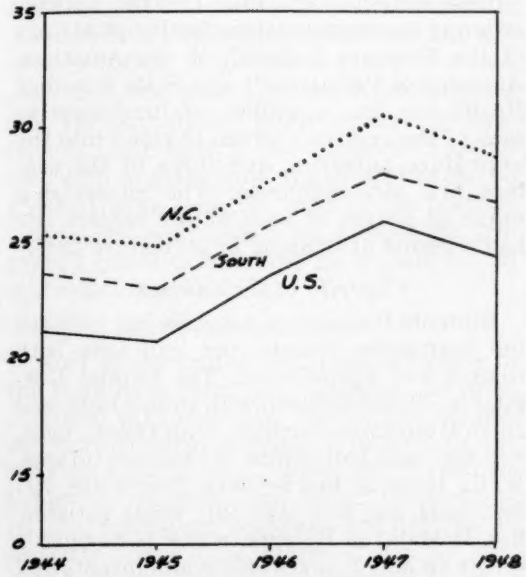

Fig. 1. Crude birth rate per 1000 population: North Carolina, the South, and the United States, 1944-48. (Source: National Office of Vital Statistics)

about one third of the infant deaths in North Carolina, with congenital malformations, influenza and pneumonia, and birth injuries ranking far behind in second, third, and fourth places (fig. 2). The percentage of deaths due to congenital malformations is lower in North Carolina than in the United States as a whole.

In North Carolina premature births account for approximately 33.9 per cent of the deaths occurring in the first year of life, for 50.5 per cent of those in the first month of life (fig. 3), for 54.1 per cent in the first week of life, and for 61.4 per cent in the first day of life. Eighty-nine per cent of the deaths from prematurity occur within the first seven days of life, and a large percentage of these actually occur within the first forty-eight hours. Many of these infants could be saved if they had adequate medical care immediately after birth.

Beginning of the Program

It was not until after the American Academy of Pediatrics made its survey of child health services in North Carolina in 1945[2]

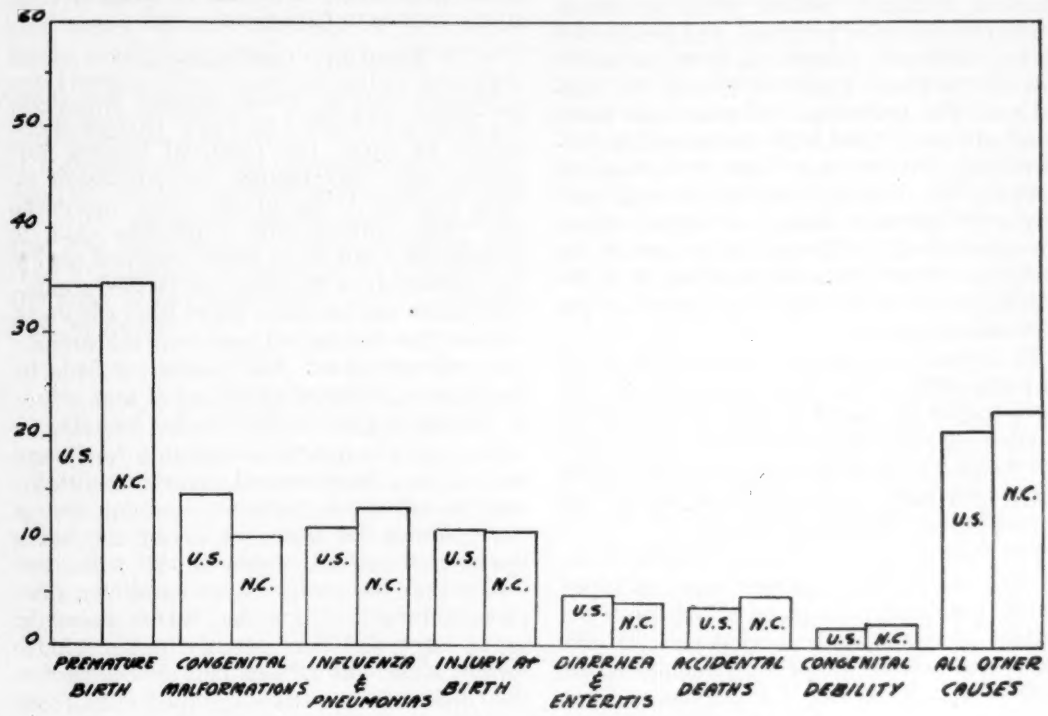

Fig. 2. Percentage distribution of infant deaths by selected causes: United States and North Carolina, 1947. (Sources: National Office of Vital Statistics and the Division of Vital Statistics of the North Carolina State Board of Health)

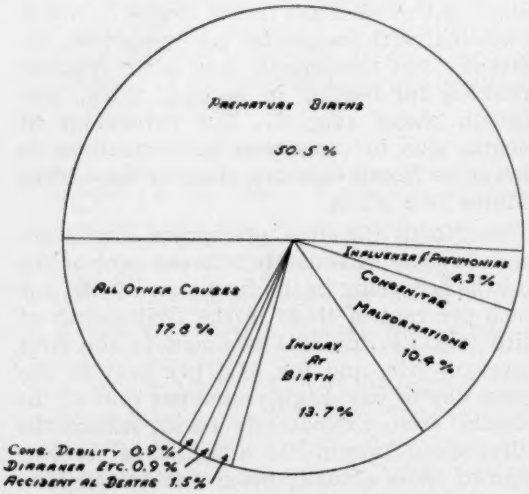

Fig. 3. Causes of death in the first month of life: percentage distribution in North Carolina, 1948.

that any concerted action was taken towards a program for the care of prematurely born infants. It was recommended in the Academy's report that some program for prematurely born infants be instituted. The North Carolina Pediatric Society went on record as approving such a program, and the United States Children's Bureau made funds available to the State Board of Health for that purpose. The premature program was instituted on July 1, 1948, with two hospitals participating — Watts and Duke Hospitals in Durham. A pediatric consultant was employed by the State Board of Health, under the direction of Dr. George M. Cooper of the Division of Maternal and Child Health, to devote his full time to the development of the premature program.

An advisory committee of three physicians, all pediatricians, has been appointed by the State Board of Health to advise on policies of the program. This committee meets several times a year with members of the State Board of Health and representatives of the United States Children's Bureau.

The first consideration was to enlarge the existing premature centers and to open others. Originally, the plans called for seven centers in strategically located areas of the state—one each in Asheville, Winston-Salem, Charlotte, Raleigh, and Wilmington, and two in Durham. At the present time five of these are in operation, and one more has been approved and expects to open by May 8. These centers compare favorably with the "Standards and Recommendations for Hospital Care of the Newborn Infants" of the American Academy of Pediatrics[3]. The State Board of Health has lent a number of incubators to each of the centers. Oxygen is piped into the premature nurseries, and three of the centers are air-conditioned. The supervising nurse in charge of each of the centers has had a period of training in premature care.

Capacity of the Centers

Biltmore Hospital in Asheville has beds for ten premature infants and will take both colored and white babies. The Baptist Hospital in Winston-Salem, with twelve beds, and Duke Hospital in Durham, with twenty beds, will also take both white and colored infants. Watts Hospital has between twelve and fifteen beds, and will take only white patients. Rex Hospital in Raleigh, which is to open a center on May 8, takes only white infants and has a capacity of seventeen beds. The James Walker Memorial Hospital in Wilmington has just opened a premature center with a capacity of twelve, and will take both colored and white babies. Negotiations are being made with Mercy Hospital in Charlotte to open a twelve to fifteen bed unit.

Eligibility Requirements

Initially, babies which weighed less than 5½ pounds at birth and whose parents were unable to carry the financial burden for special care were eligible for admission to these centers. At the present time, however, only those infants who weigh less than 5 pounds are eligible for state financial aid in the centers. It is felt that the larger premature babies can be cared for in local hospitals without the specialized care that the premature centers afford. The number of beds in the centers is limited and it is felt that priority should be given to the smaller infants.

The policy in regard to eligibility for financial aid has been revised recently. Initially only the parents in the lower economic group were eligible for financial aid by the State Board of Health. A review of this policy revealed that the centers were admitting premature infants from the lower economic group only, and that parents in the middle income class who needed help in caring for their babies were completely eliminated from participation. The present policy is to admit premature infants weighing less than 5 pounds at birth as applications are made,

until the official capacity of the center is reached. It is left to the pediatrician and admitting officer to determine whether or not parents should make application for financial aid. The parents are given a chance to contribute financially to the program. Parents who wish to participate are allowed to choose a pediatrician from the staff of the hospital center. The pediatrician has to meet the program's qualifications and he is paid on an individual case basis.

Transportation

Most of the county health departments in the state have aluminum "Praegel" carriers, equipped with hot water bottles and oxygen, for transporting premature infants to the nearest hospital that cares for premature babies or to a premature center. Conferences on the premature program are held in all districts of the state. Nurses from the local health departments attend these conferences and are instructed in the use of the carriers and in the care of the premature infant.

Reporting of Premature Births

The critical time in the life of a premature baby is the first few days—in fact, the first few hours. It was felt that if premature births could be reported to the health department within a few hours after they occurred, the health department could take whatever action necessary to give aid and, if necessary, to transport the infant to a center or hospital equipped to take care of premature babies. The 1949 legislature passed a bill requiring that the birth of any infant weighing less than 5½ pounds or 2500 Gm. be reported to the local health department within twenty-four hours[4].

Referral and Follow-Up Service

The care of the premature infant is only a part of the infant care program. Since it is necessary to know what type of home the infant will return to, and whether or not the home is equipped to take care of him, a program of referral and follow-up services was instituted. The supervisor of the premature center sends a request to the local health department in the county of the parents' residence, asking that the nurse visit the home to see that it is equipped for the infant. When the baby is discharged from the hospital, the health department is notified and a visit is made to the home within a few days after the infant's return. The weight of the baby is checked and a report of its condition is sent to the center and to the State Board of Health. Further public health nursing service in the home is continued as the need arises.

Wherever a premature infant is born out of wedlock and application for aid under the premature program is made, the case is reported to the State Welfare Department. The local health department is asked to request aid from the local welfare department if the need arises. This latter department has cooperated very well with the program.

Aid to Other Hospitals

Since the premature centers can care for only about one fifth of the premature babies, the majority have to be cared for in local hospitals. In order to improve the care of premature infants in these hospitals, the Board of Health has set aside a sum of money to aid ten hospitals a year in which there is an attending pediatrician. Aid consists in lending the hospital two incubators, and giving a scholarship to one of the nurses to attend a course in premature care. The course lasts from six weeks to two months.

Hospital Teaching Center

It is planned to give refresher courses in premature care for nurses in county health departments. Scholarships for these courses are given by the State Board of Health. Previously the nurses have had to go out of the state for these courses, as none of the North Carolina hospitals were able to offer such a course. It is now planned to make Duke Hospital a teaching center, and a grant of $16,000 has been given to that hospital to develop a model, twenty unit premature center. Negotiations are being made with Duke University to include long refresher courses in premature care for nurses other than those in public health. A pediatric nurse with experience in the care of premature infants is to be employed at Duke Hospital to plan and teach a program of study in the care of premature infants, and to conduct institutes in the various premature centers in North Carolina.

Financial Aspects of the Program

A report on the program up to March 31, 1950, showed that the care of 564 babies had been completed and that the care of 676 cases had been authorized, at an average cost of $423.00 per infant. This cost seems to be excessive, but the Board of Health pays on a cost basis which varies from $11.00 to $14.45

Table 1

Watts Hospital Premature Nursery Mortality Statistics
1938-1948

Weight Group	Total Admissions	Deaths	Graduated	Mortality
1,000 Gm. or less	40	40	0	100.0%
1,001-1,500 Gm.	66	48	18	72.7%
1,501-2,000 Gm.	114	20	94	17.5%
2,000-2,500 Gm.	221	29	192	13.1%
Total	441	137	304	31.0%

January 1, 1949 to January 1, 1950
(White Infants)

	TOTAL				Born Outside				Born in Hospital			
Weight Group	Total Admissions	Deaths	Graduated	Mortality	Total Admissions	Deaths	Graduated	Mortality	Total Admissions	Deaths	Graduated	Mortality
1,000 Gm. or less	11	9	2	81.8 %	6	5	1	83.3%	5	4	1	80.0%
1,001-1,500 Gm.	30	10	20	33.3 %	15	2	13	13.3%	15	8	7	53.3%
1,501-2,000 Gm.	61	10	51	16.39%	33	6	27	18.1%	28	4	24	15.0%
2,000-2,500 Gm.	79	0	79	0	11	0	11	0	68	0	68	0
Total	181	29	152	16.02%	65	13	52	20.0%	116	16	100	13.7%

per day. This *per diem* cost includes nursing, drugs and oxygen, and hospital care.

The program this year will cost the State Board of Health between $250,000 and $275,000. This money comes from federal sources and there is little likelihood that the appropriation will be increased next year. A number of premature infants are being turned away because we do not have adequate space in the centers. A center in Charlotte is badly needed. It is hoped that there will be enough funds to open one there during the next fiscal year. More funds are also needed to enlarge the program generally. It is hoped that the state legislature will match some of the federal funds to aid us in enlarging the program.

Another possible source of aid is the hospital insurance companies. The insurance companies do not want to participate in the care of prematurely born infants. Most of the companies have a stipulation in their family policy that no infant is eligible for care until sixty days after birth. It is felt strongly that the hospital insurance companies should include coverage for prematurely born infants. The majority of these infants are born in hospitals without premature centers, and have to be cared for there. The premature program cannot give financial aid for the care of infants outside of the centers, because our funds are limited.

Statistical Reports

Since the program has been started, the rate of premature deaths in this state has already been reduced. In 1948 the incidence of deaths due to prematurity was 34.3 per 100,000 estimated population, while in 1949 it was 24.3 per 100,000 estimated population —a drop of ten points. In 1948, 1,302 deaths due to prematurity were reported, and in 1949 there were only 938. In hospitals where premature centers are located, the mortality among premature infants has been reduced since the center was opened (tables 1 and 2).

Statistics on all the premature infants in the centers are kept by weight groups, and the Division of Vital Statistics of the State Board of Health is compiling figures on reported births by weight groups. Nineteen hundred and forty-nine was the first year in which birth certificates required the birth weight. Out of 106,568 live births there were 7,451 infants weighing less than 5½ pounds —a total of 7 per cent (table 3). The figure usually given for the percentage of premature births is 5 to 6 per cent. There were 11,145 birth certificates in 1949 which failed to report the birth weight. In the first two months of 1950, babies weighing less than 5½ pounds made up 7½ per cent of the total number of births reported.

Table 2
Duke Hospital Premature Nursery Statistics*

Weight Group	Total Admissions	White			Non-White			Total Mortality
		Total	Deaths	Graduated	Total	Deaths	Graduated	
1947								
1,000 Gm. or less	10	5	5	0	5	5	0	100.0%
1,001-1,500 Gm.	18	11	7	4	7	3	4	55.5%
1,501-2,000 Gm.	37	15	4	11	22	3	19	19.1%
2,001-2,500 Gm.	92	55	3	52	37	1	36	4.3%
Totals	157	86	19	67	71	12	59	19.8%
1949								
1,000 Gm. or less	12	3	3	0	9	7	2	83.3%
1,001-1,500 Gm.	71	21	6	15	50	8	42	19.5%
1,501-2,000 Gm.	72	27	8	19	45	5	40	16.1%
2,001-2,500 Gm.	85	41	1	40	44	1	43	2.3%
Totals	240	92	18	74	148	21	127	16.2%

* All Groups (White and Non-White, those born at Duke and elsewhere)

Table 4 gives the weight groups of the premature births, during January and February, 1950. The percentage of premature infants in each of these weight groups is comparable with previously published reports[5]. Fortunately, the majority of the premature births (69 per cent) are in the weight group above 2000 Gm. or 4 pounds, 6 ounces. Experience has shown that these infants can be cared for outside of the centers, in regular hospital nurseries. It is recommended, however, that they be placed under the care of a pediatrician and a nurse who have had training in premature care. If possible, the premature infants should be cared for in a unit separate from the regular nursery. They should have the advantage of an incubator and oxygen, and should be protected from infection by good isolation technique. Some of the premature babies have to remain at home for varying periods of time. Most health departments have emergency kits which can be used to aid such infants. It is strongly recommended that infants weighing less than 2000 Gm. be admitted to a premature center, or if no beds are available there, to a hospital equipped to care for premature infants, with a pediatrician in attendance.

Table 3
Incidence of Premature Births in North Carolina*

Live Births	Premature Weight (5½ lbs. or less)	Incidence of Premature Births
1949		
106,568†	7,451	7%
January and February, 1950		
14,125	1,057	7.5%

*Source: Division of Vital Statistics, North Carolina State Board of Health.

†The weight of 11,145 of these infants is unknown.

Table 4
Births Reported for January and February, 1950, by Weight Groups

Weight	No. Births	Percent
1,000 Gm. or less (2 lb., 3 oz. or less)	43	4%
1,001-1,500 Gm. (2 lb., 4 oz.-3 lb., 4 oz.)	85	8%
1,501-2,000 Gm. (3 lb., 5 oz.-4lb., 6 oz.)	198	18.7%
2,001-2,500 Gm. (4 lb., 6 oz.,-5 lb., 8 oz.)	731	69.1%

Prior to the institution of this program very few infants weighing less than 3½ pounds at birth survived in this state. Now an increasing number of infants whose birth weight was below this figure are able to graduate from the centers. The smaller the infant, the more liable it is to birth injuries, and we have an unfavorable report from one hospital on the outcome of two infants in the weight group 1000 Gm. (2 pounds, 2 ounces) or less. However, the smallest of the premature infants that survived under the program is now 8 months old, weighs 15 pounds, and is doing well. This baby weighed only 1 pound, 10 ounces at birth.

Plans for the Future

1. The number of centers should be increased. Charlotte needs one, and there should be one in the middle eastern part of our state—in Kinston, Fayetteville, or Greenville.

2. Long term follow-ups on the premature infants cared for under this program should be instituted. Questionnaires are to be sent

out to parents of premature infants when they are a year old, and at yearly intervals thereafter.

3. We hope to offer, in the future, institutes on prematurity for physicians as well as for nurses.

Summary and Conclusion

A state-wide public health program to care for prematurely born infants in North Carolina has been described, and it has been shown that the success and continuing need of the program warrant its expansion.

In closing I wish to give credit particularly to two physicians whose foresight, advice, and guidance made this premature program a reality. They are Dr. George M. Cooper, director of Maternal and Child Health Services of the State Board of Health, and Dr. Arthur H. London, Jr., regional chairman of the American Academy of Pediatrics.

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Abstract of Discussion

Dr. Arthur Hill London, Jr. (Durham): I feel that the most essential part of a premature center, once it is properly equipped, is a nurse who is trained in premature work and is interested in caring for these babies.

As Dr. Murphy has shown you, the mortality among premature infants has been reduced considerably in the centers. Eventually, of course, the mortality will reach an irreducible minimum. We have to recognize that a certain percentage of the children in the lower weight group are going to die on the first day of life. If they survive the first day, then it is incumbent upon us to try to keep them alive.

In the higher weight group the greatest menace is infection, and I believe that the marked reduction in the mortality among this group is definitely due to the practical elimination of true infections in the premature centers. This has been accomplished by having nurses interested in the program, and by keeping all other personnel out of the premature nursery, so far as possible.

There is a question, of course, as to the advisability of transporting a premature infant to one of these centers. Moving one of these babies, even in a portable incubator, is unquestionably a hazard. On the other hand, I think we can definitely state that the hazard of moving such a child is not nearly as great as the hazard of keeping it under unfavorable circumstances. The ideal situation would be for all hospitals to have the equipment and the personnel to take care of the premature infants in their own communities, so that we can eliminate the hazards of a long trip.

As always, there are bad things associated with the good. Before the premature center at Watts Hospital was opened, we had never seen a case of retinal fibroplasia. In the past year, by virtue of the fact that we are saving some of these premature babies, we have had two children with this condition.

Dr. Robert B. Lawson (Winston-Salem): I would like to ask Dr. Murphy what is the incidence of retinal fibroplasia in this state, in comparison to the rather high incidence in Boston and New York, in children weighing less than 1500 Gm.

Dr. Marion Y. Keith (Greensboro): May I ask what is the lowest birth weight that is compatible with survival?

Dr. John L. Ward (Asheville): I would like to have some explanation of the fact that Negro infants are not going to be admitted to some of the premature centers. Unless adequate provision is made for colored as well as white babies, I think that government help should be withdrawn from the nurseries.

Dr. Murphy: In reply to Dr. Lawson's question about retinal fibroplasia, I am sorry that I do not know the incidence in this state. We are planning to make a survey of all children weighing less than 3 pounds who have been treated under this program, to see what the percentage may be in that class. As we know, retinal fibroplasia does not always progress to complete blindness. It may stop at any stage. Perhaps the explanation for the higher incidence in the North is the fact that the babies are examined earlier up there, and consequently more cases of beginning retinal fibroplasia are recognized.

More work needs to be done on that problem. Vitamin E has been thought to be a panacea for it, but there is some evidence now that ACTH may help.

With regard to Dr. Ward's question, we have felt that if one center in a certain area has facilities for colored patients, it is not necessary to insist that all the centers in that area admit Negro babies. We hope that in the future, however, all the centers might take colored infants.

Dr. J. B. Sidbury (Wilmington): Are babies weighing more than 5 pounds excluded from the premature centers?

Dr. Murphy: Babies weighing as much as 5½ pounds can be admitted to the centers, but we don't give financial aid for any baby weighing more than 5 pounds. We feel that the larger infants can get along pretty well in local hospitals and do not need the premature center as much as the smaller ones. We want to put our money where it will do the most good.

Dr. Sidbury: And where is the graduation point?

Dr. Murphy: That is left up to the pediatrician. Most of them at Duke Hospital, I believe, are allowed to leave the center at 2200 Gm., which is around 5 pounds.

Management of the Epileptic—The risk of making the patient feel different from others must be weighed against that of accidents. The epileptic, of course, cannot hold a driving license. If liable to attacks during the day he should not ride a cycle on crowded roads. He should not swim unless accompanied by someone who knows his disability and who can take care of him, and he should not go into a crowded swimming-bath. No other restrictions need be imposed unless the attacks are exceptionally frequent.—Sir Charles Symonds: Management of the Epileptic, Brit. M.J. 2: 1047 (Nov. 4) 1950.

TREATMENT OF FIBROSITIS IN THE NECK AND SHOULDER WITH MICROTHERMY (RADAR)

GEORGE DARWIN WILSON, M.D.

ASHEVILLE

Diagnosis of Fibrositis

Fibrositis, an inflammatory condition of the fibrous tissues, may be primary or secondary in type. In my experience both types are characterized by a triad of findings: (1) pain, (2) hypotension, and (3) neuropathy.

Fibrositis of the neck and shoulder region commonly involves the occipital nerves and the brachial plexus. Brachial fibrositis[1] is characterized by tenderness over the brachial plexus, above and below the clavicle, and by pain on abduction of the arm.

Patients with fibrositis of the neck and shoulder commonly complain of headache, pain in the arm, inability to move the arm without pain, pain in the elbows and wrists, and numbness or tingling in the fingers. There may be aching below the nape of the neck or over the triangular area centered on the seventh cervical spinous process. Another symptom is inability to rotate the head or flex the neck without pain. Patients state that the muscles are especially stiff in the morning, and that the pain becomes less severe after exercise, returning gradually about mid-afternoon.

Fibrositis is characteristically unilateral, one side of the neck and shoulder being more painful than the other. Fibrositis in the shoulder is often associated with bursitis, frequently subdeltoid bursitis; with peritendonitis; or with perineuritis most commonly involving the axillary nerve, less frequently the occipital and radial nerves. Nerve roots at the level of the fifth and sixth cervical vertebrae are especially vulnerable to fibrositis of the deep neck muscles, with resultant paresthesia.

Fibrositis of the cervical muscles may be responsible for another seldom considered condition—that of phrenic neuritis, which is usually unilateral. When scalene muscles are contracted as a result of fibrositis, the phrenic nerve may be pinched, and the involved side of the diaphragm is seen to be elevated by fluoroscope[2].

Read before the First General Session, Medical Society of the State of North Carolina, Pinehurst, May 2, 1950.

Examination of the patient

At the first examination, it is well to use a simple protractor or goniometer to measure the limitation of motion in the neck and shoulder. This gives an excellent guide to the severity of muscle stiffness or spasm, and affords a definite yardstick by which to measure the patient's improvement. The three basic shoulder motions measured are forward flexion, abduction, and posterior flexion or hyperextension with the patient in the standing position. The degrees of rotation and flexion of the neck are measured with a goniometer.

With the patient sitting on the edge of the table, the digital examination begins. The examiner places his hands on the nape of the neck, and moves his thumb with the fibers of the cervical portion of the trapezius muscle. Pressure is added gradually to elicit fibrositic nodules. Firm pressure with the finger tip just below the superior nuchal line at the exit of the greater or lesser occipital nerves may produce occipital neuralgia, which the patient complains of as headache. The deep reflexes of the biceps, triceps, or wrist may be altered. A radiculitis or paresthesia over one or more branches of the brachial plexus can sometimes be mapped out by pin scratch. Weakness of the hand grip may be measured with a hand dynamometer.

Characteristics and Advantages of Microthermy

Microwaves are high frequency radiations emitted at a frequency of 2,450 megacycles per second, with a wavelength of approximately 12 cm. They have optical properties and can be reflected, refracted, and diffracted[3]. They can be selectively absorbed. Other workers have demonstrated that the penetration of microwaves into the body produces an ideal form of deep heat. It has been demonstrated[4] that the temperature and flow of blood are increased in extremities exposed to microwaves. Osborne and Frederick[5] reported 24 experiments on human subjects which showed that the average temperature at a depth of 2 inches immediately following microwave irradiation was 104.2 F. (40.1 C.).

While the cautions and contraindications applicable to all types of medical diathermy[6] should be observed in the use of microthermy, this method offers several advantages to the physician desiring a deep or penetrating type of heat. High frequency radiations are con-

ducted from a multicavity magnetron tube by a coaxial cable through one of three types of directors to the uncovered area of body under treatment. The use of the microwave director avoids the necessity for cables, drums, or pads, with toweling intervening between the skin and the electrodes. The treatments produce very little erythema of the skin or discomfort. The application of microthermy is less likely than short wave treatments to produce pain over neuritic areas.

Use of Microthermy in a Series of Thirty-Eight Cases

During the past three years I have obtained satisfactory results by treating fibrositis of the head, neck, and shoulders with microthermy. This paper is based on a series of 38 cases treated by microthermy. Comparison with a previous series of cases treated by short wave[7] indicates that in both secondary and primary types of fibrositis relief is obtained sooner from microthermy, and that fewer treatments are necessary for recovery.

The present series contains 34 cases which were considered secondary fibrositis, and 4 of primary fibrositis. Both groups of patients in this series presented a common triad of findings: (1) pain, (2) hypotension, and (3) involvement of the sensory and motor nerves in the upper extremity.

The average age of the patients with secondary fibrositis was 54 years, and this group contained 21 men and 13 women. Associated conditions included arthritis and faulty metabolism. The average blood pressure of this group of patients was 128 systolic, 75 diastolic. In 30 cases the axillary nerve was involved unilaterally, although 3 of these patients presented bilateral paresthesia. The right side of the body was more frequently involved in this series.

Four cases in which no associated pathologic condition was demonstrable, and in which a history of unusual physical strain was obtained, were considered primary fibrositis. These patients—one man and 3 women—were first seen more than three days after the onset of pain in the neck and shoulder region. Their average age was 32 years. The average blood pressure was 121 systolic, 68 diastolic. Paresthesia over the axillary nerve was found in all 4 cases, and was unilateral in 3 and bilateral in one. Paresthesia over the radial nerve distribution was found in 2 cases. All patients in this group had roentgen

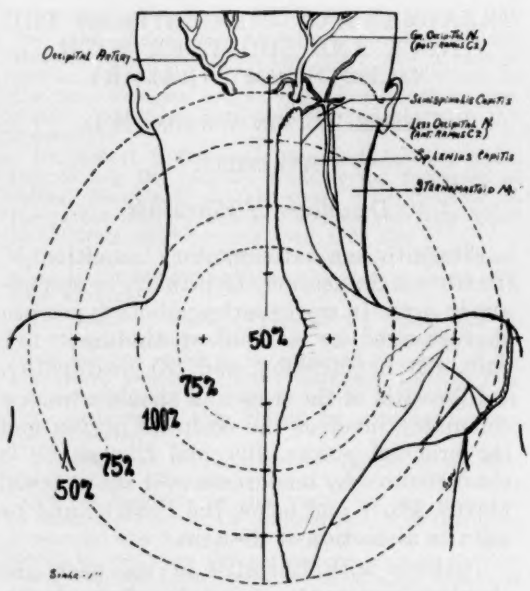

Fig. 1. Surface heat pattern from microwaves applied to the back of the neck and shoulder, with director B 2 inches from the skin.

studies to rule out a fracture dislocation of the cervical and upper dorsal vertebrae.

Method of treatment

Hemispherical director B, 6 inches in diameter, was found most practical for the treatment of fibrositis of the neck and shoulder areas (fig. 1). It was employed at a distance of 2 inches from the bare skin, as recommended by the manufacturer*. The patient was placed on a wooden table, and all adhesive tape, metal jewelry or ornaments, and dressings near the field of exposure were removed before treatment. The period of exposure was thirty minutes—ten minutes to each cervico-clavicular area and to the back of the neck. The patient was always advised to inform the therapist or physician of any unpleasant sensation, tingling, or aching, and if such sensations were noted, the amount of radiation was lowered. After the first exposure, patients usually asked for more heat.

It is well to state that, regardless of automatic timing devices, the patient and machine should be inspected frequently by the physician or therapist during any type of diathermy treatment. This precaution is especially important in cases with peripheral nerve involvement. In some cases the first application of microthermy aggravated the neuritic

* Raytheon (Microtherm) Manufacturing Company, Wortham, Mass.

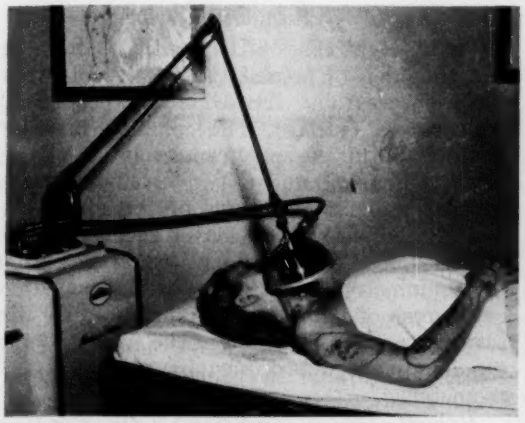

Fig. 2 (Case 1). Application of microthermy to the right cervicoclavicular area. Areas of hypoalgesia are mapped on the right arm; dotted lines show improvement three days after first treatment.

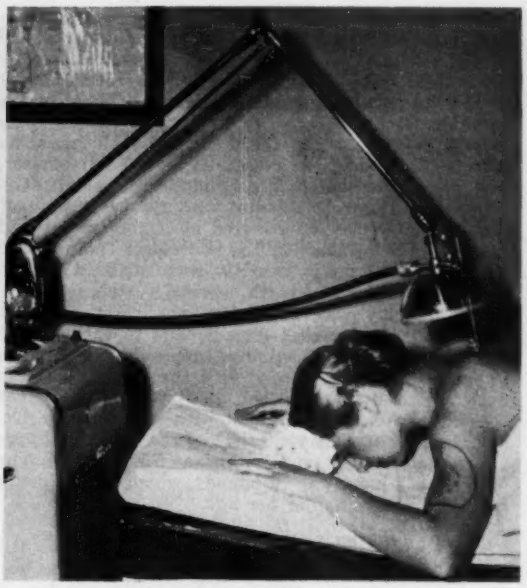

Fig. 3 (Case 1). Application of microthermy to back of neck. Three days after the treatment the nerve pattern in the forearm is restored, and the pattern in the upper arm (indicated by dotted lines) is improved.

pains during the first few minutes of treatment. After three to five minutes the nerves usually became adjusted to this penetrating heat, and the patient was comfortable. If the patient still complains of neuritic pain after the first five minutes of treatment, the output should be cut down until the patient is comfortable.

The treatment was repeated two or three times a week (twice a week in the patients with secondary fibrositis, three times weekly in the patients with primary fibrositis) until relief was obtained. There was found to be no advantage in giving treatments daily.

Results

In the group of 34 patients with secondary fibrositis symptomatic recovery, as determined by goniometric measurements of joint motion, hand dynamometer readings, and testing of the sensory nerve pattern by pin scratch, occurred after an average of five microthermy treatments given twice weekly. The 4 patients with primary fibrositis required an average of four exposures to microwaves.

For relief of pain sufficient to allow a good night's sleep, an average of three treatments was required in the group of secondary cases, and one in the group of patients with primary fibrositis. Subjective relief could be closely correlated with increases in the range of joint motion and in the strength of the hand grip, and with a diminution in the areas of paresthesia.

In one patient with hypertension the blood pressure gradually leveled off during treatment, although it had failed to respond to medications given over a period of several years. Two patients had an associated Dupuytren's contracture, the fourth finger of the right hand being contracted in both cases. Both patients obtained full extension of the fingers after microthermy.

No burns or side reactions were encountered. The oral temperature was determined by standard clinical thermometers before and after twenty to thirty minutes' exposure to microthermy, and was found to be unchanged.

Illustrative Cases

Case 1 (Primary fibrositis)

A 26 year old white woman was involved in a minor automobile accident, in which her head was suddenly jerked forward and then backward. She drove home and had no complaints until fourteen hours later, when, on attempting to arise, she was unable to lift her head from the pillow, or to move her arms without pain. Examination eighteen hours later, including roentgenologic studies of the cervical vertebrae and skull, revealed no fractures or dislocation of the cervical vertebrae.

When the patient was referred to me three days after the injury, she was unable to rotate or flex the neck, or to forward flex or abduct either shoulder. She complained of pain in the base of the neck, across the shoulders, and radiating down both arms to the finger tips.

Digital examination revealed a tender, tight, and painful scalenus anticus bilaterally. Digital pressure

on the scalene muscle caused pain to radiate down both arms and forearms. The blood pressure was 116 systolic, 78 diastolic. Sensory nerve examination by pin scratch revealed hypoalgesia over both axillary and radial nerve patterns in both arms. There was a palpable, localized area of induration, which was painful to pressure, in the middle of each trapezius muscle. The hand grip, measured by a dynamometer, was 70 pounds in the right hand, 52 in the left. The limitation of neck flexion and rotation, and of shoulder motion was measured by a goniometer and recorded. On the basis of the neurologic findings the site of the fibrositic neuritis was localized at the level of the fifth and sixth cervical vertebrae.

Microthermy was applied to the right and left cervico-clavicular areas (fig. 2) and to the back of the neck (fig. 3), ten minutes' exposure being given to each site. On her second visit three days later the patient stated that she had slept without sedatives the night after her treatment with microthermy. Re-examination on this visit showed the areas of hypoalgesia to be much smaller in size (fig. 2 and 3). The grip in each hand was 70 pounds, which is considered normal for a woman of her age.

Case 2 (Fibrositis secondary to osteoarthritis)

A 44 year old surgeon came to my office on May 23, 1949, complaining of inability to operate or to hold his right arm up for examination procedures because of pain in the right shoulder and neck. He gave a history of having had wryneck while serving in an army hospital in 1945, and again in 1948. The present pain was described as located in the base of the skull and deep in the neck, with radiation down the right arm to the hand. He could not hold instruments firmly, and at times felt as though his hand were asleep. He stated that the pain had become progressively severe during the past week. For a week he had been taking vitamin B_1, 100 mg. per day, along with multiple vitamin capsules, without results.

A complete dental survey made two days before he consulted me had revealed no abnormal findings. Thorough roentgenologic studies were done, and the report was as follows: "Spine: This study was made with AP and lateral projections, as well as right and left oblique projections. Minimal very small osteoarthritic spurs were noted at margins of bodies of C-5 and 6. The oblique film shows considerable reduction in size of the spinal foramen between 3rd and 4th segments on the right. This is caused largely by osteoarthritic spur formation at the margins of the adjacent bodies. Right shoulder: No bone or joint abnormalities are detected."

Physical examination revealed limited abduction of the right shoulder, with pain at 100 degrees and a decrease in the pulse rate at 110 degrees abduction. Hand dynamometer readings were 56 pounds in the right hand, 112 in the left. Sensory nerve examination by pin scratch revealed hyperalgesia over the right axillary and radial nerve patterns.

Following a ten day vacation, during which the patient failed to show any improvement, he reported for treatment by microthermy. He was given three treatments a week for a total of seven treatments. At the end of this time the sensory nerve disturbances had disappeared and he had recovered his hand grip. Both scalene muscles were palpably softer and were no longer painful to pressure. Full range of motion in the right shoulder was regained. One year later this patient was still free of pain.

This is a representative case of fibrositis secondary to osteoarthritis, in which a fibrositic brachial neuritis was benefited by microwave therapy.

Summary

Thirty-eight cases of fibrositis in the neck and shoulder (4 primary and 34 secondary) were successfully treated by exposure to microwaves (radar). The common triad of findings in this series of cases was: (1) pain, (2) hypotension, and (3) involvement of the sensory and motor nerves of the upper extremity. Objective criteria of recovery were restoration of full joint motion, as measured by goniometry; return of normal sensation over areas of paresthesia mapped out by pin scratch; and an increase in the power of the hand grip, as determined by a hand dynamometer.

Microthermy was applied by director B at a distance of 2 inches from the bare skin. Treatments were directed to each side of the neck anteriorily and to the back of the neck, each site being exposed for ten minutes. Oral temperature was unchanged by thirty minutes' exposure to microthermy, and no burns or undesirable reactions were encountered.

The author wishes to express his appreciation to B. J. Mullen, R.N., R.P.T.T., for assistance in preparation of this article.

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Motion Picture Chronicle of Medical Meetings

First in a series of "Tele-Clinics," motion picture reports on medical meetings of national and international significance to the medical profession, has been produced by Wyeth Incorporated, Philadelphia pharmaceutical firm.

The first "Tele-Clinic," released throughout the country this week, features high lights of the Fourth General Assembly of the World Medical Association, which convened in New York last month. The production is a thirty-five minute, 16 mm., black and white sound film which spotlights and reviews the important conferences and business sessions of the five day World Medical Assembly.

A schedule of films to be produced during 1951 is now being prepared. It is planned to film many of the major medical meetings in cooperation with the various medical societies, and to distribute these films periodically.

RECENT TRENDS IN THE DIAGNOSIS AND TREATMENT OF CANCER OF THE LARYNX

GEORGE B. FERGUSON, M.D.

DURHAM

There are many milestones along the path of medical progress, some of them monuments to achievements which have changed the course of medical history, and others merely markers along the slow and careful path of some particular branch of medical science. In medicine, outstanding milestones marking such achievements as the work of Koch and of Pasteur, the discovery of anesthesia and of antisepsis, of vaccination and of salvarsan, and, more recently, of the sulfonamides and the antibiotics, have attracted the attention and caught the imagination of physician and layman alike. These are the great, spectacular discoveries.

The physician must never forget, however, the steps which have led to the slow but sure advance. The field of cancer particularly is marked by such an advance. In 1807, when Bozzini introduced a mirror arrangement permitting indirect inspection of the larynx, a milestone was passed in the early diagnosis of cancer of the larynx. Subsequent changes have altered the light source and improved the reflecting surfaces of this mirror, but the original idea has remained unchanged.

In 1829 Babbington devised a direct laryngoscope. Ehrmann performed the first laryngofissure operation for cancer of the larynx in 1844, and Billroth the first laryngectomy in 1873. The indications for, and the limitations of, these two operations were at first poorly understood, and few successes were experienced until after 1900. From that time forward, the accumulated experience of careful observers established criteria for the selection of patients to be subjected to these operations, and the percentage of good results increased.

Most important of all, however, were the teachings of those pioneers who passed on to the profession in general, and even to the lay public, certain rules or maxims that led to the earlier diagnosis of this disease. The profession came to accept Jackson's dictum that hoarseness of more than a month's duration must be considered a sign of cancer until the condition is proved to be otherwise. His dramatic statement that "Death lurks under an over-hanging epiglottis" served to point up the need for prompt and expert diagnosis in this hidden yet accessible area—accessible, that is, to the man trained in the use of the laryngoscope and the laryngeal mirror.

Unfortunately, the sulfonamides and the antibiotics—two recent, outstanding discoveries marking milestones in the course of *general* medicine—have no place in the treatment of cancerous growths, and, when applied to the therapy of undiagnosed hoarseness, may well lead to delay in the institution of suitable treatment. It would seem advisable, therefore, never to use the antibiotics in any cases of hoarseness of more than a month's duration, until the absence of cancer has been fully and carefully proved. Delay at this stage may necessitate a far more mutilating operation, or may permit the growth to become incurable.

The importance of early diagnosis is obvious. All large centers now report five year cures in 80 to 85 per cent of early cases of cancer of the larynx. The cure rate drops lower and lower as the disease progresses.

Incidence and Classification of Malignant Growths of the Larynx

MacKenty[2] has stated that malignant disease of the larynx forms from 2 to 3 per cent of all malignant tumors, and 16 per cent of all laryngeal tumors. Ninety-five per cent of all malignant laryngeal growths are of the squamous cell type. The remaining 5 per cent are made up of adenocarcinomas, basal cell carcinomas, sarcomas, and undifferentiated types. Ninety per cent of the cases of laryngeal cancer occur in males, and those over 40 years of age are far more susceptible than younger persons.

Cancers of the larynx may be divided into four groups[1], according to their location:

1. Intrinsic growths, limited strictly to the true vocal cords
2. Endolaryngeal growths, occurring in the ventricle or on the ventricular bands, on the aryteno-epiglottic folds, on the interarytenoid space, or growing across the anterior commissure
3. Subglottic growths, situated below the level of the vocal cords

Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 3, 1950.

From the Department of Otolaryngology, McPherson Hospital, and the Department of Surgery, Division of Otolaryngology, Duke Hospital, Durham.

4. Extralaryngeal growths, found on the epiglottis or on the posterior aspect of the larynx.

Eighty per cent of all cancers of the larynx are intrinsic; they start on the vocal cords and produce immediate impairment of voice quality. Hoarseness may vary from the slight roughening produced by small growths to almost complete aphonia when the growths are large. It is sometimes difficult to judge *early* changes in voice quality. The patient, accustomed to his own voice, may note such changes when the doctor, less familiar, will not. Hoarseness may vary in intensity even while growth of the lesion continues. Such factors as rest of the voice and the subsidence of intercurrent acute infections may cause improvement in the voice and lead to undue optimism, especially if the improvement coincides with the administration of medical treatment.

In the 20 per cent of laryngeal cancers which start in areas other than the vocal cords—that is, the endolaryngeal, the subglottic, and the extralaryngeal growths—hoarseness is *not* an early symptom, and will be detected only when the cord or the arytenoid joint is invaded. In these cases the earliest symptoms may be extremely vague. However, throat discomfort, painful swallowing, or pain which radiates to the ear should excite suspicion. In intrinsic cases of cancer metastasis occurs relatively late, because drainage from the cords is scanty. Elsewhere, however, the larynx is richly supplied with lymphatics, and metastasis may occur early.

Methods of Treatment

The problem of selecting the proper method of treatment would be greatly simplified if all cases of cancer of the larynx could be diagnosed early. Incipient cancers (those which are confined to one vocal cord and which have not spread to the arytenoid or across the anterior commissure) are suitable for the conservative laryngofissure operation. This operation preserves the larynx, and the patient is left with an adequate, if somewhat roughened, voice. Larger intrinsic growths, still small by many standards, and all extrinsic growths invade so much of the larynx that conservative surgery can no longer be trusted, and total laryngectomy or irradiation must be employed. In cases in which the patient is too old or too infirm for laryngectomy, irradiation is the only hope. Recent reports from some roentgenologic clinics[3] suggest that radiation has a special field of usefulness when the growth is too large for laryngofissure, but when the mobility of the vocal cords is preserved. In these cases, the results claimed for roentgen therapy are equal to those of total laryngectomy —that is, about 60 per cent five year cures— without the mutilating effects of the operation. In more advanced growths, total laryngectomy, alone or combined with radical dissection of the glands of the neck, and postoperative irradiation may be employed.

Is There a Trend Away from Early Diagnosis?

In spite of widespread dissemination of information about cancer to the general public, we will always be faced with the problem of the patient who neglects himself. It is distressing to see such patients, and to realize that fear or ignorance has prevented more timely medical assistance. It is of utmost importance that we, as members of the medical profession, lead the way to early recognition of cancer; yet a study of my own personal series of cases would suggest that the present trend is away from early diagnosis.

A comparison of the ratio of small or early growths to the larger or late growths can be made by comparing the ratio of conservative operations (laryngofissures) to that of radical operations (laryngectomies). Of the malignant tumors of the throat seen by me in the years 1937 to 1950, there were 105 cases which primarily involved the larynx. Of these 102 were squamous cell carcinomas, 1 was a basal cell carcinoma, and 2 were sarcomas. The patients included 8 women and 97 men. Of this group, 65 were considered suitable for some operative treatment. In only 20 patients was the diagnosis made early enough to permit the conservative laryngofissure operation, while in the remaining 45 the disease had either started its growth outside, or had grown beyond the limit of the vocal cord. Since 80 per cent of all cancers of the larynx are intrinsic, it seems more than likely that the larger number of growths in these 45 cases demanding laryngectomy had begun on the vocal cords and had extended beyond their limits.

In the 20 cases in which a laryngofissure was possible, the average interval between the onset of hoarseness and operation was twelve weeks; three weeks was the shortest,

and thirty-two weeks the longest interval between the onset of hoarseness and this conservative operation. In the 45 cases in which a laryngectomy was necessary, the average duration of hoarseness was fifty-two weeks, six weeks being the shortest and 156 weeks the longest interval between the beginning of hoarseness and operation.

After excluding operations for growths other than squamous cell cancer, I have divided the operative cases into two groups: (1) those treated between 1937 and 1947 (prior to the widespread use of antibiotics), and (2) those treated between 1947 and 1950. From 1937 to 1947, 27 operations—16 laryngofissures and 11 laryngectomies—were performed—a ratio of 1.4 conservative to 1 radical operation. Between 1947 and 1950 the picture was altered drastically. Of 38 operations performed, 4 were laryngofissures, and 34 were laryngectomies—a ratio of 1 conservative to 8.5 radical operations.

Although statistics may be misleading when a relatively small number of cases is recorded, it seems unlikely that this factor alone could account for so marked a shift. Since the welfare of a large number of patients is involved, we must try, at least, to search out the reasons for *any* trend *away* from early diagnosis.

Summary

1. Eighty per cent of laryngeal cancers begin on the vocal cord and produce early hoarseness.

2. Twenty per cent of laryngeal cancers begin in "silent areas."

3. Early diagnosis leads to preservation of laryngeal function, and of life itself.

4. I have noted a trend away from early diagnosis, which statistics seem to couple with the use of antibiotics.

5. The sulfonamides and antibiotics should never be used in any case of hoarseness of more than a month's duration, unless the absence of cancer has been fully proved.

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Trained employees are more valuable to an organization than new employees, and periodic health surveys may prevent many physical disasters and prolong the working life and capacity of faithful workers. Edward I. Salisbury, M.D., F.A.C.S., New York State J. Med., September 15, 1950.

SUGGESTIONS FOR THE IMPROVEMENT OF GENERAL PRACTICE

WILEY S. COZART, M.D.

FUQUAY SPRINGS

This paper is presented in the interest of salvaging the lost art of making a diagnosis and instituting treatment without the aid of complete laboratory facilities and a group of specialists to consult. For years to come in North Carolina, we general practitioners must depend upon ourselves, good office equipment, and the best office personnel that we ourselves are able to train. As I see it, one of the greatest needs in the field of healing today is better practice of medicine "on the spot." By this term, I mean where the sick patient is first seen—in the home or in our offices.

The Need for Better Medical Service in Rural Areas

Sixty-five per cent of the population of North Carolina today is rural; yet there are now less than a hundred physicians practicing in the rural areas of the state. Do you wonder that the people ask for state medicine, or something that will serve them? More than a million of our people are still without proper medical care. In my opinion, it should be against the law to deliver a baby in the home; a physician who does so should be considered guilty of obstetric malpractice. Yet I am forced to make home deliveries.

The rural population of our state is making wonderful progress in all other lines of endeavor. They live in better homes, with electricity and plumbing; they have access to good roads, and to consolidated schools, and soon they will have telephones, thanks to Governor Scott. They have increased their acreage yields and are now entering into new fields of beef production, dairy farming, and other diversifications. It seems that these rural people are being denied nothing in life except good medical care.

Possible Solutions to the Problem of Rural Medical Care

What is the solution for this problem? While I know of no panacea to suggest, I do

Read before the Section on the General Practice of Medicine and Surgery, Medical Society of the State of North Carolina, Pinehurst, May 3, 1950.

believe that the situation can be improved—and I am going to try to make some definite recommendations.

The establishment of clinics in small communities

These forgotten people can be better served in their sickness through better planned office practice, and through the establishment of small hospital clinic in smaller communities. In North Carolina, as in every rural state, there is a need for better medical services offered the public at, or near, their homes. The smaller communities of North Carolina are not going to be denied complete medical service much longer. We should accept the challenge of the public, pool our professional interests, and build group offices and clinics.

We in Fuquay Springs are more fortunate than those in many areas, in having hospital facilities only twenty miles away—in Raleigh. Too often, however, I am unable to get my patients admitted to a hospital. A few times within recent years, I have had very ill patients for whom I was not able to obtain hospital care. This situation is by no means peculiar to my practice.

One answer, which I suggested earlier, is the establishment of small town clinics through the help of the Medical Care Commission. Unfortunately, the Commission is not sympathetic toward small hospitals operated by no more than five doctors. They say they are substandard. If three or four doctors, pooling their efforts and knowledge, do substandard work in a hospital, how much more substandard is the work done by the individual doctor without hospital equipment and consultants?

Last year, when we attempted to obtain funds from the Medical Care Commission to help establish a clinic in Fuquay Springs, we were given a cold reception. In just a few years, there is going to be a famine of doctors in the smaller communities of our state. We should look toward the examples of the Dakotas, Iowa and Wyoming, and establish small clinic hospitals. They have been successful in those states.

Better office practice

I have been trying to help the situation by caring for a greater number of patients in my office. Twenty-five per cent of the patients usually referred to hospitals can be treated in the office and the home if the physician is only willing to work out a diagnosis and a plan of treatment.

I rarely refer patients with poisoning, fractures of an extremity, industrial trauma, and surface infections. We now have available a very choice line of antibiotics. I keep these in my office, and administer during the day such drugs as are indicated. The result is the relief of much suffering, convenience to myself, and less cost to the patient.

The Importance of High Standards for the General Practitioner

The doctor in any community, regardless of its size, is looked upon as a leader because he is an educated man. For this reason, medical students should be hand-picked, and have at least a fair personality. The doctor should dress well and have good habits.

To my mind, it is the poorest sort of economy for a physician not to avail himself of the best facilities he can afford; yet a high percentage of the doctors in our state have a most inadqeuate office setup. After a doctor has been in practice for a few years and has met some of his more pressing financial obligations, surely he is able to provide himself with a modern office and efficient office personnel. Many doctors, very soon after beginning practice, will invest in stocks, bonds, farms, and real estate; yet they are satisfied with a dirty office and poor office organization. In view of the long hours that a doctor must spend in his office, and the fact that medicine should be the first love of every doctor, it seems that the promotion and expansion of this art should take foremost place in his heart, and in the economic planning of his life.

Suggestions for the General Practitioner's Office

In my opinion, a doctor's office should be located on the ground floor. I would not have an office on the second or third floor—rent-free and furnished. Climbing stairs and waiting for elevators takes a great deal of the doctor's time and energy, and does not improve his patient's disposition. The location should be in a vicinity which is not too noisy and which affords ample parking space.

Plans for the doctor's office should be drawn by a good medical architect. *Medical Economics* will recommend one in your area. The office should consist of seven or eight rooms: the physician's private office, an

operating and treatment room, a combination x-ray and laboratory room, two convalescing rooms, a white and a colored waiting room, and possibly a business office. There should be a separate entrance to the operating room for accident and emergency cases. I can make an x-ray and get a tentative reading on a fracture case in twenty minutes after the patient enters my office.

The office should be comfortably heated, and complete electric facilities should be provided.

Office personnel

I have in my office a secretary, a nurse, and a "trouble-shooter." My secretary has been with me for fourteen years, and has a remarkable memory. She takes good dictation and is an excellent speller. A good secretary is worth more to you than you are to yourself. My nurse has been with me for ten years. She is capable, industrious, meets the public well, and does not complain when called back to the office for emergencies. Every office of any size needs a "trouble-shooter." When things go wrong mechanically and electrically, he may be called.

Equipment

The waiting rooms should be furnished with bright, cheerful furniture. Good reading material, heat, and fans will help to make the patients comfortable.

The doctor's private office should be quiet, preferably on the back side of the building. The physician's chair should be comfortable and his desk adequate in size, and neat and clean.

Every doctor's office should be equipped with a good microscope, and he should remember that it is there for use. Nowadays there is a strong temptation to send feces, blood stains, and even warm sperm to the State Laboratory for examination. A good nurse is easily taught to do a number of these examinations. I have a good laboratory and refrigerator for vaccines in my office.

My operating room is equipped with Westinghouse roentgen apparatus, an otolaryngologist's treatment chair and stand, a sterilizer, and diathermy apparatus.

Treatment of Patients in the Office

The doctor should be willing to sit back in his chair and listen to the patient's story. The doctor who is a good listener won't need to make so many examinations. The patient himself will make 50 per cent of the diagnosis, if he is only given the chance.

I believe that any good physician can make a thorough physical examination if he is interested, if he has good equipment, and if he will train his office nurse to assist him. Life insurance examinations are quickly done and provide an easy source of income.

Treatment of gynecologic conditions

For eroded and ulcerated cervices, I use local applications of a 2 to 25 per cent solution of silver, fulguration, acid douches(for the patient to use at home), sulfathiazole tampons, and gentian violet, together with any systemic medications that are indicated.

While I realize that the practice is not approved by gynecologists, I do remove organized and unorganized, detached and attached products of conception in my office. I use placenta forceps and curettement, sometimes injecting Novocain into the anterior lip of the cervix where I am going to place my tenaculum, but more often, giving no local or general anesthetic. Since most of these cases are infected, I mop out the inside of the uterus with tincture of Merthiolate or iodine. These patients get well.

I am reasonably certain that most uterine hemorrhages, which occur in all stages of adult life, are due to endocrine imbalance and endometrial hyperplasia. When a trial of calcium, iron, ergotrate, and other supportive measures gives no relief, I curet the cervix and pack gauze tightly around the cervix and inside the vagina, but never inside the uterus. The gauze is removed the next day. I seldom have these scrapings examined, unless I suspect malignancy.

Salpingitis was the biggest field of medicine when I first began practice in 1915. Today this condition is easily cured with sulfonamide drugs, penicillin, and iron. I use large doses of penicillin in oil, with 2 per cent aluminum monostearate. I have been fortunate in that I have had few reactions to a sulfonamide or to penicillin, and none severe enough to require hospitalization.

Treatment of other conditions

While I realize that most cases of sciatica are due to a ruptured disk, I still believe that conservative treatment should be given a fair trial. I inject the sciatic notch area with a 2 per cent solution of Novocain in normal saline. Then I put the patient face down on a bed with a diathermy coil over the area for about two hours, repeating this treat-

ment every two or three days. I recommend crutches, mustard plasters at home, vitamins, a good diet, and a dose of salts every morning. Most of these patients get well.

In cases of poisoning I am not too much concerned with antidotes, as most of the poisons have already made new organic compounds in the stomach. I siphon the stomach at once with a stomach tube, using apomorphine, mustard and ipecac to hasten the emptying. Then I think about specific antidotes, and treat the patient supportively in one of my convalescent rooms for the rest of the day. Before beginning to wash the stomach, one should be sure that the tube is in the esophagus and not in the trachea.

I have removed a considerable number of hemorrhoids with a 3 per cent solution of Novocain. When this is injected into them, they roll out and can be easily clamped, tied, and removed with a diathermy cutting knife. I keep these patients in my office throughout the day, then send them home with plenty of analgesics.

A great number of patients with cholecystitis, with and without colic, may be kept from the operating table by nonsurgical drainage of the gallbladder. I lay the patient on his right side and drain the gallbladder for about four hours, using repeated injections of a magnesium sulfate solution in the tube.

Patients with colic should have their pain eased. I put them in a convalescent room in my office and try to work out a diagnosis during the day, meanwhile using heat, dilaudid, and other sedative drugs to relieve pain.

I make a chest film in all cases of pleurisy.

Since I am not satisfied with any treatment for asthma after these thirty-five years of practice, I usually refer these patients. Aminophylline helps in some cases; Nethaphyl, in others. I have found that the iodides are the best treatment yet available, if they are continued for a sufficient length of time.

Referral of Patients to Specialists

When it is necessary to refer a patient to a specialist, the general practitioner should select those doctors who will work with him. He should let the specialist know that he is interested in following the case along with him, and is willing to share some of the responsibility. We have a number of very fine specialists in Raleigh and Durham, and it would be most difficult for me to carry on my work without the help I get from Duke.

Conclusion

When I pass the mantle of practice to the shoulder of my son in July, I will have just three admonitions for him.

First: Go to church; be public spirited.

Second: Cultivate good relations with your brother doctors.

Third: Go to every good football game in North Carolina, and get your Duke-Carolina tickets early.

Abstract of Discussion

Dr. Oscar W. Goodwin (Apex): I would like to stress especially the importance of one aid to the general practitioner—and that is a good nurse in his office. I happen to be fortunate enough to have one of those, and rarely do I have to suggest to a patient who comes into my office that she have a complete examination, because most of them are expecting such an examination. The nurse has it all arranged, so that it is a matter of course.

Recently, I have had 3 patients who have left good doctors because they didn't offer to give them a complete physical examination. One of them had high blood pressure, and the doctor told her that low backache contributed to the high blood pressure, but did not make a pelvic examination. I think this is inexcusable. If we are going to make any headway in the control of cancer, we must find it early; and the responsibility for finding it early falls on the shoulders of us who see the patients first.

As Dr. Cozart said, good office equipment is absolutely essential to good work, and this is one point which we can use in educating our patients to come to the office instead of asking us to go to their homes.

There are two points that we should not forget, however. In this day of mechanization, most of us want to have our diagnosis cut and dried; we don't want to work to dig it out. Often in the rush of the day's work, we do not take a good history and keep good office records. To my mind, records are just as essential to good practice as good office equipment. A thorough history taken the first time a new patient is seen, and recorded for future reference is one of the greatest assets that any general practitioner can have.

Last but not least, let us not forget that the patient is still a human being, and let us not fail to show him that, whether we find a streptococcus or a pneumococcus or an influenza virus, it is he, after all, that we are most interested in.

The individual with an ulcer diathesis is, in my experience, not externally discernible; it is an oversimplification of the facts of medicine to say that you can spot the ulcer patient by his facies or his demeanor. That obviously worrisome striver whom you suspect may have a digestive tract of iron resistance but be a hypertensive or a future coronary victim, he may pay the penalty entirely within his nervous system, or he may go on to old age, completely unpenalized. Conversely, the externally calm and placid individual often has a burrowing peptic ulcer of undetermined etiology.—Sara M. Jordan: An Evaluation of the Peptic Ulcer Problem, M. Ann. District of Columbia 17:326 (June) 1948.

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1951

January 1, 1951, marked the beginning of the second half of the twentieth century. The first half has been perhaps the most memorable one since the birth of Christ.

Medicine has witnessed revolutionary discoveries and inventions. The various chemotherapeutic and antibiotic agents have accelerated the shift of emphasis from the infectious diseases to the so-called degenerative ones. Cortisone and ACTH promise to point the way to a still different approach to disease. They are, however, keen-edged tools that need to be used with extreme caution until we have become more familiar with them, and have learned to evaluate their power for harm as well as for good.

With so many new remedies at our disposal, it is pertinent to recall Dr. Logan Clendening's masterly address, "Resistance to Change as a Contribution to Medical Progress," delivered before the Connecticut State Medical Society in 1942. One of the most important qualities needed by a medical man is the ability to keep his balance: balance between theory and practice; between psychic and somatic; between ultraconservatism and overenthusiasm. One of the best presidential addresses ever presented to our State Medical Society was Dr. William MacNider's, in 1926, on "The Balanced Mind in Medicine."

It is distressing to see World War III threatening before World War II has really ended. Here, again, it is necessary to keep one's balance between wishful thinking—the sort of optimism that refuses to face facts—and an unreasonable pessimism that considers another world war inevitable. That man should be destroyed by the modern array of Frankenstein monsters he himself has created is too horrible to believe. If man can not find for himself a way out of the dilemma he himself has brought about, does he deserve to survive? Rather than fall into extreme pessimism or extreme optimism it is better to choose the middle ground of facing facts with courage, and to adopt the motto of Napoleon that an obstacle is something to be overcome. There are obstacles aplenty in the pathway of peace—but there are other ways of overcoming them than by brute force. Napoleon also arrogantly said that God was on the side of the heaviest artillery; but he lived long enough to learn that he was mistaken.

It was at the end of the last century that Kipling wrote his masterpiece, the "Recessional"; and in the middle of this century it would be well for both Britain and America to remember his warning:

> If, drunk with power, we loose
> Wild tongues that have not Thee in awe—
> Such boasting as the Gentiles use
> Or lesser breeds without the Law—
> Lord God of Hosts, be with us yet,
> Lest we forget, lest we forget!
>
> For heathen heart that puts her trust
> In reeking tube and iron shard—
> All valiant dust that builds on dust,
> And guarding calls not Thee to guard—
> For frantic boast and foolish word,
> Thy mercy on Thy people, Lord!

"LOCKSLEY HALL"—ONE HUNDRED AND TWENTY-FIVE YEARS AFTER

Someone has said that the poets are our modern prophets. One who doubts this statement should read—or re-read—Tennyson's *Locksley Hall*. This poem, written more than a century ago, forecast with remarkable accuracy the use of airplanes, both for commercial and for combat purposes.

> For I dipt into the future, far as human eye could see,
> Saw the Vision of the world, and all the wonder that would be;
>
> Saw the heavens fill with commerce, argosies of magic sails,
> Pilots of the purple twilight, dropping down with costly bales;
>
> Heard the heavens fill with shouting, and there rain'd a ghastly dew
> From the nations' airy navies grappling in the central blue.

In contrast to the poet's uncanny foresight, one of the leading scientists of his day wrote, near the turn of the century, an article proving to his own satisfaction, by all the then-known laws of physics, that it was impossible for bodies heavier than air to fly, and suggesting that the Wright brothers give up their quixotic attempts and do something useful.

Today many so-called hard headed realists are equally skeptical as to the next part of Tennyson's vision, that which enabled him to foresee a successful United Nations:

> Till the war drums throbb'd no longer, and the battle flags were furl'd
> In the Parliament of man, the Federation of the world.
>
> There the common sense of most shall hold a fretful realm in awe,
> And the kindly earth shall slumber, lapt in universal law.

Since the first part of the poet's prophecy came true, is it too much to hope that the second may also be realized? It is encouraging, at least, to know that such a philosopher as Bertrand Russell agrees with Tennyson's view. In an article in the *New York Times Magazine* for December 31*, Mr. Russell denies that war is inevitable, and asserts that "only an increase of intelligence is needed to avoid disaster."

Mr. Russell is sure that wars will not go on forever, and believes that the day will come "sooner than most people think, when the human race will allow itself to be happy and will decide to have done with the outworn enmities that at present make it impossible to enjoy what our knowledge and skill have made possible. Instead of feeling oppressed by the sense of a malign destiny dooming us to disaster," he asserts, "we ought to feel a new sense of human power, of capacity to master a reluctant environment, and to learn the difficult art of living together in the same world without mutual hatreds."

Does not Mr. Russell say again that "the common sense of most" will finally prevail, "and the kindly earth shall slumber, lapt in universal law"? And is it too much to hope that Tennyson's vision was just as clear when he foresaw a successful United Nations as when he envisioned aviation?

* * *

DR. GEORGE M. COOPER

In the passing of Dr. George M. Cooper, the North Carolina medical profession has lost one of its most useful members. From the time that he was made part time county physician of Sampson County in 1909, and used for the first time in North Carolina mass vaccination against typhoid fever, Dr. Cooper has been in the very forefront of the fight against disease through public health measures. Under his direction North Carolina became the first state in the Union to have birth control clinics sponsored by the State Board of Health. For this he was given, at the 1949 meeting of the American Public Health Association, the Lasker Award for outstanding achievement in planned parenthood.

Dr. J. W. R. Norton said of Dr. Cooper:

"North Carolina has lost its greatest Public Health Official of all time. He served longer, engaged in more activities and did more to make North Carolina Public Health conscious and to minister to its Public Health needs than any man in the history of the State. He pioneered more Public Health services than any other man I know, not only in North Carolina but in the nation. Both personally and professionally he had few peers, if any, and no superiors anywhere. His was constantly an up-hill fight against ignorance, misinformation, indifference and short-sighted selfish interests. The two greatest groups of his beneficiaries were under-privileged mothers and children, in whose behalf he not only worked unceasingly and for whose relief he was instrumental in securing millions of dollars in public funds, which he administered where they would do the most good among the greatest number of people. During his service with the State Board of Health, the maternal death rate was reduced to one-fourth and the infant death rate to one-half of those rates prevailing in North Carolina when his service began. This progress was due to the work of many devoted physicians and assisting personnel; Dr. Cooper was the patient planner, the dauntless and resourceful leader, the tireless worker."

Surely Dr. Cooper deserves to be among the elect of whom the Spirit said, "that they

*"To Replace Our Fears with Hopes"

may rest from their labours; and their works do follow them."

* * *

PHYSICIANS' OBLIGATIONS TO REDUCE HOSPITAL COSTS

The February issue of this journal reprinted an editorial from the *New York State Journal of Medicine* on the costs of hospitalization. Another editorial along the same line in the issue for July 1 is so timely and thought provoking that it, too, is lifted bodily from the columns of our Yankee exchange for the edification of our readers.

* * *

A tangible service to patients is within the control of many physicians; namely, lowered costs for laboratory work. Says the President of New York County Medical Society, in part:[1]

> Many a patient finds that his total bill for an illness may involve a very considerable charge for a battery of tests performed to accumulate a voluminous mass of diagnostic data. The new trend, too, is to have the patient undergo an entire "check-up" in diagnostic centers—even when critical illness is not at hand—as a measure of preventive medicine. This, again, is as it should be. Yet again there is no doubt that such a comprehensive series of laboratory procedures all adds to the price paid by someone for medical care . . . by the public, by health agencies, by the hospitals, or by the private patients.
>
> Without trying to fly against the advancing winds of medical progress, one may reasonably ask for a bit of reflection on the blanket orders sometimes issued for laboratory tests which—on second thought—promise to aid the diagnostician only slightly, which may sometimes by their very abundance confuse the issue, and which always increase the cost of illness for the patient.
>
> There is an understandable emphasis on elaborate clinical diagnostic procedures among younger physicians—fresh perhaps from a residency in a major university teaching hospital where they had only to lift a finger to have harassed technicians turn out the work. That was part of their post-graduate medical education and gave them the training and experience they will need later. Moreover, this reliance on the objective information thus available is a desirable thing . . . as information.
>
> But diagnosis is a mixture of information plus judgment. As these younger physicians come to work with their own patients in their private practice, they gradually learn that a second and a third look at the patient and their experience in physical diagnosis will often reap rewards in attaining the correct decision without confusing the issue with a host of laboratory data and at a considerable saving in cost to their patients. Never forget that the cost of medical care is a major issue of medicine today.
>
> One must add, immediately, that laboratory work, if it is truly needed, must never be sacrificed merely on the basis of cost. Admittedly, too, the margin between enough laboratory work and an over-abundance is sometimes a narrow one. Nevertheless, for those who err on the side of ordering too much laboratory work it is well to remember that the world had good diagnosticians before they were born.(1)

While no one contends that the patient's financial interest is paramount, it is a definite and, we believe, a growing obligation of the physician to assist in cutting costs in his patient's behalf wherever possible. This cannot be emphasized too often. Excessive fees and indiscriminate prescribing of expensive drugs, as well as unnecessary laboratory procedures, open the profession to justifiable criticism. There is, as Dr. Keating remarks, an art and science to the practice of medicine. The best over-all care of the patient—medically and economically—is the proper blending of the two.

Anything which physicians can do to help lower the cost to the patient without sacrificing the quality of medical care is most meritorious. Sensible planning in the numbers and types of diagnostic tests to be ordered for the patient is one starting place to achieve this end.

1 New York Medicine, April 5, 1950, p. 22.

* * *

NEW YORK STATE JOURNAL CELEBRATES GOLDEN ANNIVERSARY

The *New York State Journal of Medicine* began its existence at the very first of this century, and so is celebrating its Golden Anniversary with Volume 51, Number 1 (January 1, 1951). It is appropriately dressed for the occasion in a gorgeous golden cover. The leading article, by Dr. Laurance Redway, summarizes the history of the journal. This is followed by a symposium, "A Half Century of Medical Progress," with papers, by authorities in their respective fields, on the progress made in internal medicine, surgery, and various special branches of medicine—including aviation medicine.

The last page of this issue is used by Editor George W. Kosmak to discuss "The Next Fifty Years in Medicine." He says that "We may know what is needed, but how close we come to the achievement of the goal is something that we hope to present in the centenary number of this *Journal*." The NORTH CAROLINA MEDICAL JOURNAL extends to the *New York State Journal of Medicine* its heartiest congratulations upon its Golden Anniversary; and to Dr. Kosmak the wish that his hope may be realized, and that he will present in the centenary number the medical progress made in the next half century.

BULLETIN BOARD

Watts Hospital Medical and Surgical Symposium

The following program will be presented at the Eighth Annual Watts Hospital Medical and Surgical Symposium, to be held at the Carolina Theater in Durham, February 14 and 15.

Wednesday, February 14

9:00 a.m. Address of Welcome—Mr. S. B. Forbus

9:30 a.m. Clinical Pathologic Conference—Warner Sheldon, M.D., Associate Professor of Pathology, University of Pennsylvania, Philadelphia; Barton R. Young, M.D., Associate Professor of Radiology, Temple University Hospital, Philadelphia; Waldo E. Nelson, M.D., Professor of Pediatrics, Temple University Hospital, Philadelphia.

12:00 "The Clinical Use of Histamine"—B. T. Horton, M.D., Mayo Clinic, Rochester, Minnesota.

2:00 p.m. "Intractable Pain in the Neck and Upper Extremity with Particular Reference to Protrusion of the Cervical Disc"—Grafton Love, M.D., Mayo Clinic, Rochester, Minnesota.

3:00 p.m. "Cardiac Muscle in Coronary Disease"—Warner Sheldon, M.D., Associate Professor of Pathology, University of Pennsylvania, Philadelphia.

4:15 p.m. "Obstructive Lesions of the Respiratory Tract"—Waldo E. Nelson, M.D., Professor of Pediatrics, Temple University Hospital, Philadelphia.

8:00 p.m. Panel Discussion on "Headache"—E. Charles Kunkle, M.D., Assistant Professor of Medicine (Neurology) Duke University Hospital, Durham; Bayard T. Horton, M.D., Mayo Clinic, Rochester, Minnesota; Grafton Love, M.D., Mayo Clinic, Rochester, Minnesota; Harry Schenck, M.D., Associate Professor of Otolaryngology, University of Pennsylvania, Philadelphia; Barton R. Young, M.D., Associate Professor of Radiology, Temple University Hospital, Philadelphia; Frank B. Walsh, M.D., Associate Professor of Ophthalmology, Johns Hopkins Hospital, Baltimore.

Thursday, February 15

9:30 a.m. Panel Discussion on "Respiratory Infections"—Perrin Long, M.D., Moderator, Professor of Medicine, Johns Hopkins Hospital, Baltimore; Harry Schenck, M.D., Associate Professor of Otolaryngology, University of Pennsylvania, Philadelphia; J. Warrick Thomas, M.D., Associate Professor of Medicine, Medical College of Virginia, Richmond; Waldo E. Nelson, M.D., Professor of Pediatrics, Temple University Hospital, Philadelphia; Barton R. Young, M.D., Associate Professor of Radiology, Temple University Hospital, Philadelphia.

12:00 Frank B. Walsh, M.D., Associate Professor of Ophthalmology, Johns Hopkins Hospital, Baltimore.

2:00 p.m. "Allergic Problems Demanding Prompt Treatment"—J. Warrick Thomas, M.D., Associate Professor of Medicine, Medical College of Virginia, Richmond.

3:00 p.m. "The Clinical Use of Antibiotics"—Perrin Long, M.D., Professor of Medicine, Johns Hopkins Hospital, Baltimore.

4:00 p.m. "The Rhinologic Management of Allergy of the Upper Respiratory Tract"—Harry Schenck, M.D., Associate Professor of Otolaryngology, University of Pennsylvania, Philadelphia.

News Notes from the University of North Carolina School of Medicine

A postgraduate medical course sponsored by the University School of Medicine and the Extension Division has been arranged at Raleigh beginning January 18 with the Wake County Medical Society as co-sponsor. The program is as follows:

January 18

4:00 p.m. "Early Diagnosis of Cancer in the Female Genital Tract"

8:00 p.m. "Methods of Treatment"
Dr. Houston Everett, Johns Hopkins University, Baltimore, Maryland

January 25

4:00 p.m. (Topic to be announced)

8:00 p.m. (Topic to be announced)
Dr. Charles F. McKhann, Western Reserve University School of Medicine, Cleveland, Ohio

February 1

4:00 p.m. "Dysuria"

8:00 p.m. "Urinary Tract Infection"
Dr. Theodore R. Fetter, Philadelphia

February 8

4:00 p.m. "Progress Made in Rehabilitation of the Deaf During the Last 15 Years"

8:00 p.m. A further discussion of "Progress Made in Rehabilitation of the Deaf During the Last 15 Years"
Dr. Julius Lempert, New York, New York

February 15

No Meeting—Week of Watts Symposium

February 22

4:00 p.m. "Carcinoma of the Stomach"

8:00 p.m. "Acute Pancreatitis"
Dr. Alton Ochsner, Tulane University of Louisiana, New Orleans, Louisiana

March 1

4:00 p.m. "Hypersplenism"

8:00 p.m. "The Treatment of Anemia"
Dr. William Dameshek, New England Center Hospital, Boston, Massachusetts

Afternoon Sessions
4:00 p.m.—Nurses' Home, Rex Hospital

Dinners
7:00 p.m.—The New Carolina Country Club

Evening Sessions
8:00 p.m.—The New Carolina Country Club

* * *

Dr. Robert H. Wagner has joined the staff of the Department of Pathology as research associate; Dr. Wagner received his graduate training at the Univesity of Cincinnati; until recently he held a fellowship in biological chemistry at the Children's Hospital in Cincinnati.

* * *

A grant of $6,793 has been made to Dr. Thomas C. Butler, professor of pharmacology, by the U. S. Public Health Service to investigate quantitatively the metabolic fate of N-methyl derivatives of barbituric acid, in particular some of the compounds in current use as antiepileptic agents, with the aim to contribute to the theoretical knowledge of the chemical structures required for antiepileptic activity as well as to clarify the question of the rightful place of these drugs in therapeutics.

Regional Meeting of the American College of Physicians

The Ninth Annual Regional Meeting of the American College of Physicians for the State of North Carolina was held on December 8, 1950, at the University of North Carolina School of Medicine. Dr. William deB. MacNider, distinguished and beloved early member of the College from North Carolina, was the honored guest; and Dr. William S. Middleton, dean and professor of medicine at the University of Wisconsin Medical School, was the speaker of the day at a banquet held at the Carolina Inn. The following scientific program was presented at the afternoon session:

"Mechanism of the Production of Ascites in Cirrhosis of the Liver."—Jack D. Myers, M. D. (Associate), Durham.

"ACTH and Cortisone."—Frank Engel, M.D., (by invitation); Theodore B. Schwartz, M.D. (by invitation), Durham.

"Temporal Arteritis."—Monroe T. Gilmour, M.D., F.A.C.P.; Horace H. Hodges, M.D., F.A.C.P.; and Paul Kimmelstiel, M.D. (by invitation), Charlotte.

Clinicopathologic Conference.—John B. Graham, M.D. (by invitation), Department of Pathology, University of North Carolina School of Medicine, Chapel Hill; Kenneth D. Weeks, M.D., F.A.C.P., Rocky Mount.

"Triethylene Melamine Therapy in Leukemia and Malignant Lymphoma."—Wayne Rundles, M.D. (Associate), Durham.

"The Value of Quantitative Studies (Skin Temperatures and Na^{24} Clearances) of the Peripheral Circulation in the Evaluation, Diagnosis and Treatment of Peripheral Vascular Diseases."—Harold D. Green, M.D., F.A.C.P., Winston-Salem.

"Monilial Infections Complicating the Therapeutic Use of Antibiotics."—James W. Woods, Jr., M.D. (Associate); Isaac H. Manning, Jr., M.D., F.A.C.P.; Carl N. Patterson, M.D. (by invitation), Durham.

News Notes from the Duke University School of Medicine

Duke Pediatrician Joins Ochsner, Tulane Medical Staffs

Dr. Roger B. Bost, Duke Hospital pediatrician and member of the Duke Medical School faculty, joined the staff of Ochsner Clinic in New Orleans and the senior pediatric faculty of Tulane University Medical School on January 1.

The son of Mr. and Mrs. R. B. Bost of Clarksville, Arkansas, Dr. Bost attended the University of Arkansas at Fayetteville from 1939 to 1942. He received his M.D. degree from the University of Arkansas Medical School at Little Rock in 1945.

He interned at Santa Rosa Hospital in San Antonio, Texas, in 1946, and served in the U. S. Navy Medical Corp until 1948, when he joined the Duke Hospital resident staff. This year he has been a member of the medical school faculty in pediatrics.

Fifth District Medical Society

The Scotland County Medical Society was host to the Fifth District Medical Society in Laurinburg on December 14, 1950. The following scientific program was presented:

"The Practical Aspects of Cortisone Therapy," Dr. Roger Jackson of Fayetteville; "Comments on Infectious Disease in Children," Dr. Arthur London of Durham; "Anticoagulant Therapy in General Practice," Dr. Lucille Hutaff of Winston-Salem; "Diseases of the Pancreas," Dr. Wingate Johnson of Winston-Salem.

Davidson County Medical Society

Dr. J. R. Terry, who for a number of years has served as secretary and treasurer of the Davidson County Medical Society, was elevated to the presidency at the annual meeting of the group on December 7. Dr. R. G. Jennings of Thomasville was elected vice president, and Dr. M. W. Phillips of Thomasville was named secretary-treasurer.

Named as delegates to the annual state meeting at Pinehurst in May were Dr. Terry and the retiring president, Dr. R. L. McDonald of Thomasville.

Mayor J. A. Smith of Lexington, who retired several years ago from the active practice of medicine, was a special guest, and made an informal talk to his fellow physicians.

Forsyth County Medical Society

Dr. Ovar Swenson of Children's Medical Center, Boston, Massachusetts, was guest speaker at a dinner meeting of the Forsyth County Medical Society held in Winston-Salem on December 12, 1950. His subject was "Some Pediatric Aspects of Pediatric Surgery."

North Carolina League for Crippled Children

Three possible ways in which to prevent newborn children from being afflicted with cerebral palsy resulting from Rh factor incompatibility are suggested in an article by a noted cerebral palsy authority in the current issue of **The Crippled Child**, a publication of the National Society for Crippled Children and Adults, the Easter Seal agency.

Dr. Meyer A. Perlstein of Chicago, a counselor for the National Society and chief of the Children's Neurology Clinic at Chicago's Cook County Hospital, believes that the most effective way to prevent this crippling condition is through selective marriages of Rh negative women with Rh negative men.

Dr. Perlstein's article, "The Rh Factor—What it Means," outlines two other preventive methods. One is total blood transfusion for the child suffering from the effects of blood incompatability; the other, still in an experimental stage and unproven, is the use of injections of protective substances to prevent antibodies in the pregnant woman's blood from damaging the child.

The article discusses the meaning of the term "Rh negative and Rh positive," and tells briefly what happens when incompatability is present. It states that only one in twenty-five children born to Rh negative mothers will develop the condition known as erythroblastosis fetalis, and that of those who do, only one in five will develop cerebral palsy.

Prevention is emphasized as the most important way to meet the problem of cerebral palsy from

this cause. "The most effective method of preventing sequelae (consequences) is before pregnancy," he says. "To this end, if a woman is aware of her blood type and her husband's blood type, she may plan accordingly with respect to child-bearing."

TRI-STATE MEDICAL ASSOCIATION

The Fifty-Second Annual Meeting of the Tri-State Medical Association of the Carolinas and Virginia will be held in Columbia, South Carolina, on February 19 and 20. Headquarters will be the Columbia Hotel. Those expecting to attend are urged to make reservations or write Dr. W. C. Cantey of Columbia, who will take care of arrangements for them. Dr. R. B. Davis of Greensboro, North Carolina, is president of the Association.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The Eleventh Annual Essay Contest of the Mississippi Valley Medical Society will be held in 1951. The Society will offer a cash prize of $100.00, a gold medal, and a certificate of award for the best unpublished essay on any subject of general medical interest (including medical economics and education) and practical value to the general practitioner of medicine. Certificates of merit may also be granted to the physicians whose essays are rated second and third best. Contestants must be members of the American Medical Association who are residents and citizens of the United States. The winner will be invited to present his contribution before the Sixteenth Annual Meeting of the Mississippi Valley Medical Society to be held in Peoria, Illinois, September 19, 20, and 21, 1951, the Society reserving the exclusive right to publish first the essay in its official publication—the MISSISSIPPI VALLEY MEDICAL JOURNAL (incorporating the RADIOLOGIC REVIEW). All contributions shall be typewritten in English in manuscript form, submitted in five copies, not to exceed 5000 words, and must be received not later than May 1, 1951. The winning essays in the 1950 contest appear in the January 1951 issue of the MISSISSIPPI VALLEY MEDICAL JOURNAL (Quincy, Illinois).

Further details may be secured from
Harold Swanberg, M.D., Secretary,
Mississippi Valley Medical Society,
209-224 W. C. U. Building, Quincy, Illinois.

AMERICAN MEDICAL ASSOCIATION

Responding to the challenge voiced by its president, Dr. Elmer L. Henderson of Louisville, Kentucky, in his recent address to the House of Delegates, that the medical profession take the initiative in raising private funds for hard pressed medical schools, rather than seeking federal subsidies for medical education, the American Medical Association recently appropriated a half million dollars as the nucleus of a fund to be raised for the aid of medical schools throughout the nation.

The half million dollar contribution was voted unanimously by the A. M. A. board of trustees, and was announced by its chairman, Dr. Louis H. Bauer of Hempstead, New York.

* * *

For the first time American medicine nationally has accepted the problems of alcoholism as a responsibility.

The House of Delegates, the policy-making body of the American Medical Association, has passed a resolution referring the subject to its Committee on Chronic Diseases. This committee is headed by Dr. Robertson Ward of San Francisco.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Universities and research centers in sixteen states and Canada have been granted one and a half million dollars in March of Dimes funds for infantile paralysis research and professional education, Basil O'Connor, president of The National Foundation for Infantile Paralysis, announced recently. Among the institutions receiving grants was Duke University, which was allotted $17,000 for research, under the direction of Dr. J. E. Markee, professor of anatomy.

The newly approved research projects include continuing attempts to develop an effective vaccine for polio, search for a chemical agent that will prevent the virus from damaging nerve cells, development of a rapid diagnostic polio test, and the preparation of a polio anti-serum that will increase an individual's resistance to paralysis.

* * *

The National Foundation for Infantile Paralysis has announced the availability of a limited number of predoctoral and postdoctoral fellowships to candidates whose interests are research and teaching in the fields related to the problems of poliomyelitis, such as virology, biochemistry, biophysics, orthopedics, pediatrics, neurology and epidemiology.

Complete information concerning qualifications and applications may be obtained from: Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.

A special four-week training course for employment and placement counselors working with cerebral palsied and other severely handicapped workers will be held March 12 through April 6 in New York, according to Lawrence J. Linck, executive director of the National Society for Crippled Children and Adults.

The program will be given at the Institute of Rehabilitation and Physical Medicine of the New York University-Bellevue Medical Center under the auspices of the school of education of New York University.

Persons wishing to receive a fellowship must make formal application by January 26, 1951. Applications and further information may be obtained from the National Personnel Registry and Employment Service of the National Society for Crippled Children and Adults, 11 South LaSalle Street, Chicago 3, Illinois.

NATIONAL CONFERENCE ON MEDICAL SERVICES

The Twenty-Fourth Annual Meeting of the National Conference on Medical Services will be held Sunday, February 11, 1951, in the Red Lacquer room of the Palmer House in Chicago. The meeting is of special importance to presidents, secretaries, and public relations personnel of state and county medical societies.

(BULLETIN BOARD CONTINUED ON PAGE 40)

AUXILIARY

MESSAGE FROM THE PRESIDENT

Greetings for the New Year! We have mingled feelings as we start this new year. For some it may seem hard to find the happiness we would wish for them. Let's keep in mind what Gladys Taber said: "Looking back over the year is like sorting out treasures. How many good moments life gives us!" With the ideals of our Auxiliary and the desire for service, we shall be able to look back upon many treasures as the time passes. "The great use of life is to spend it for something which outlasts it."—William James.

Our responsibilities will grow daily, and our fields of endeavor may sometimes seem so great that the prospect almost overwhelms us; but let us keep in mind these wonderful words of Gladys Taber: "The world is filled with conflict; we have inherited a heavy burden in our day. But we also inherit the poetry and music and the faith in God and a belief in the common goodness of mankind."

So, again I say to you "Greetings!" May you find much satisfaction and happiness in service during this new year of opportunities.

MRS. HARRY JOHNSON
Elkin

* * *

DOCTORS' DAY

March 30 is Doctors' Day. Its object is to honor the medical profession and pay tribute to the doctors. This particular day was selected in commemoration of March 30, 1842, when Dr. Crawford Long successfully used the first anesthesia.

I want to urge each auxiliary to plan a definite program for Doctors' Day on, or as near, March 30 as possible. The observance of Doctors' Day should be planned with due regard to the size of the participating group, and the interest of the doctors in that community. In counties where there is no active auxiliary, perhaps a group of wives could get together and map out some plan for their husbands' enjoyment.

There are numerous ways of celebrating Doctors' Day. In past years some units have shown a preference for dinner dances, dinners followed by games, or covered dish suppers. Other auxiliaries prefer sending flowers to each doctor's office, or providing a red carnation for each doctor to wear in his lapel on March 30, with suitable publicity concerning the wearing of the flowers. The important thing is to see that no doctor is forgotten or overlooked.

In the event that it is impossible for an auxiliary to have a celebration, there remains the opportunity to secure some good publicity concerning the day, the progress of medical science, and the value of our doctors to humanity. In St. Louis, at the meeting of the Southern Medical Association, North Carolina received honorable mention for Doctors' Day activities in 1950. This recognition should inspire us to make even better plans for 1951.

MRS. BEN H. KENDALL
Doctors' Day Chairman

BOOK REVIEWS

Atlas of Human Anatomy. By Barry J. Anson, Ph.D., of Northwestern University. 518 pages. Price, $11.50. Philadelphia: W. B. Saunders Company, 1950.

This book contains 518 pages of pictorial representation of gross anatomy. Next to the dissection of a cadaver, it offers the most practical approach to human morphology. Drawings of serially prepared dissections are the fruition of years of painstaking work by the author and his associates. Of particular interest is the statistical presentation of the "normal" variations. This feature makes the book valuable to surgeons, who must know and recognize common variations—for example, the arterial supply to the colon. The book deals with the practical aspects of anatomy—aspects that daily confront the surgeon and physician, as well as the medical student.

Principles of Internal Medicine. By Tinsley R. Harrison, (Editor-in-Chief), Southwestern Medical College, with Paul B. Beeson, M.D., Emory University Medical School; William H. Resnik, M.D., Stamford, Conn.; George W. Thorn, M.D., Harvard University Medical School; M. M. Wintrobe, M.D., University of Utah Medical College; and 48 Contributing Authors. 1,590 pages, with illustrations. Price, $12.00. Philadelphia: The Blakiston Company, 1950.

Dr. Harrison is an inspiring teacher, with the faculty of presenting material to his students in a fresh and original manner. In the preparation of this work he has organized a team of medical men—five editors and forty-eight contributors—who share his enthusiasm for teaching, and who have succeeded in producing a book on internal medicine which is refreshingly different. It is divided into seven parts, which are entitled as follows: "Cardinal Manifestations of Disease," "Physiologic Considerations," "Reactions to Stress and to Antigenic Substances," "Metabolic and Endocrine Disorders," "Disorders Due to Chemical and Physical Agents," "Diseases Due to Biologic Agents," and "Diseases of Organ Systems."

Although it may take the reader some little time to find his way around through this arrangement of subjects, he will be well rewarded for the effort required to become familiar with the volume. There is very little padding in the work, in spite of its huge size. (Incidentally, it would be easier to handle if thinner paper had been used, or if the material had been presented in two volumes instead of one.)

One disappointment to this reviewer was that one of the most important fields in the practice of medicine was given scant attention. Although the psychoneuroses constitute from one to two thirds of the average medical man's practice, only one section of four pages is devoted to the subject of "Personality—Normal Emotional Development," as compared with 127 pages about the cardiovascular system, plus fifty pages given to the electrocardiogram.

This book will make a place for itself as an up-to-date reference work for both internists and general practitioners, since most of the general practitioner's work is in the field of internal medicine. One may be pardoned for hoping that future editions will be made lighter and easier to handle.

Progress Volume: Modern Developments in Therapeutics and Methods of Treatment. To accompany **An Integrated Practice of Medicine.** By Harold Thomas Hyman, M.D. 734 pages. Price, $10.00. Philadelphia: W. B. Saunders Company, 1950.

Volume V of Hyman's **Integrated Practice of Medicine** is entitled **Progress Volume: "Modern Developments in Therapeutics and Methods of Treatment."** As the title indicates, it is devoted chiefly to a discussion of newer remedies and their application to disease. "Therapeutic agents" are discussed, and then "Clinical Syndromes." The treatment of various conditions is outlined clearly and often in logical steps: for example, "Immediate Care," "Continuing Care," and "Interval Treatment." Prophylaxis, when feasible, is discussed.

The author gives his own opinion as to treatment, and some of his dogmatic statements will be questioned by many practitioners. For example, his enthusiasm over the antihistaminic drugs is not warranted by the carefully controlled clinical trials to which they have been subjected. Many would not consider the "biannual immunization with influenza virus vaccine," as "Practical Management" of influenza virus infections, especially in view of another statement that there has been no serious epidemic of influenza "since widespread availability of newer anti-infective agents"—a period now covering several years.

It is a disappointment that nothing new is added to the out-of-date discussion of pancreatitis found in Volume II of the original work, and that still no mention is made of the rather common condition, metabolic craniopathy. It is asking a great deal, however, of one man to cover the whole field of medical practice—and Dr. Hyman has done a good job in the original work and in this progress volume. Those who bought the original set will no doubt want to bring it up to date by adding this progress volume.

(BOOK REVIEWS CONTINUED ON PAGE 39)

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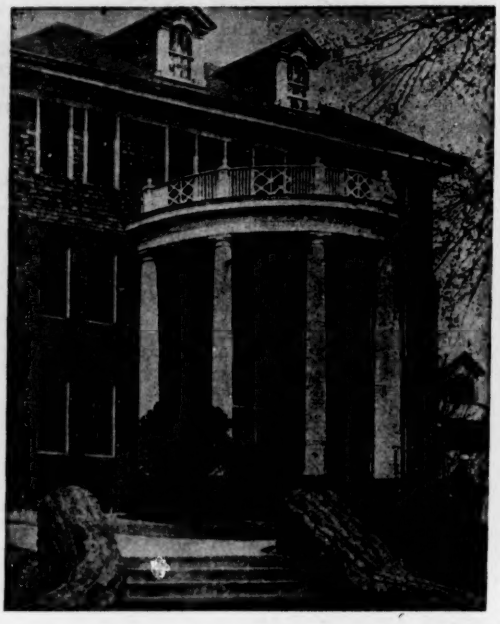

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R. Charman Carroll, M.D., Diplomate in Psychiatry
Medical Director

Robt. L. Craig, M.D., Diplomate in Neurology and Psychiatry
Associate Director

when "eating for two" ... plenty of citrus fruits

Most obstetricians today insist that their mothers ingest plenty of vitamin C, particularly after the first trimester[1] (8 oz. citrus juice during pregnancy, 12 oz. while lactating).[6] Pregnancy is thus made safer because toxemia is thereby reduced.[7] Also, more babies are born normally and with a higher birth weight, while premature and still births are fewer.[3,4] In addition, both maternal and infant health is improved postpartum when an adequate vitamin C regimen has been followed throughout pregnancy.[2] Most mothers enjoy the flavor of fresh Florida citrus fruits (so rich in vitamin C and containing other nutrients*), as well as the energy pick-up provided by their easily assimilable fruit sugars.[5]

* * *

**Citrus fruits—among the richest known sources of vitamin C—also contain vitamins A and B, readily assimilable natural fruit sugars, and other factors, such as iron, calcium, citrates and citric acid.*

FLORIDA CITRUS COMMISSION
LAKELAND, FLORIDA

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1. Burke, B. S. and Stuart, H. C.: J.A.M.A., 137:119, 1948. 2. Burke, B. S. et al.: Am. J. Obst. & Gynec., 46:38, 1943. 3. Burke, B. S. et al.: J. Nutrition, 26:569, 1943. 4. Javert, C. T. and Finn, W. F.: Texas State J. Med., 46:745, 1950. 5. McLester, J. S.: Nutrition and Diet in Health and Disease, Saunders, Phila., 4th ed., 1944. 6. National Research Council: "Recommended Food and Nutrition Board, Daily Allowances for Specific Nutrients," Wash., D. C., 1948. 7. People's League of Health: J. Lancet, 2:10, 1942.

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BOOK REVIEWS

(CONTINUED FROM PAGE 36)

Physician to the World. The Life of General William C. Gorgas. By John M. Gibson, Director of the Division of Public Health Education, Alabama State Health Department. 315 pages. Price, $4.50. Durham, North Carolina: Duke University Press, 1950.

In this book the author has succeeded admirably in presenting a vivid picture of one of the world's greatest men. From beginning to end Mr. Gibson maintains an excellent balance between Dr. Gorgas's scientific achievements and his lovable personal characteristics. Although his father, General Josiah Gorgas, was born in Pennsylvania and served as an officer in the United States Army prior to the Civil War, his mother was the daughter of an Alabama governor; so the father became Chief of Ordnance of the Confederate Army. Throughout his lifetime, General W. C. Gorgas remained a loyal Southerner.

The son sought to enter the Army by way of West Point. Since that door was closed to him, he studied medicine in order to get into the Army through the Medical Corps, graduating from Bellevue in 1879. After a year's internship in Bellevue Hospital, he entered the Medical Department of the Army in June, 1880—remaining in service until his retirement thirty-eight years later. He was then Surgeon General of the Army.

Soon after entering military service, he became interested in yellow fever, which was one of the great scourges of that day. While on duty in Texas he contracted the disease himself, but recovered. During his convalescence he fell in love with another convalescent, Miss Marie Doughty, whom he married in 1884. The immunity acquired by him and his wife stood them in good stead when, in 1898, he was named sanitary officer of Havana. Following the pioneer work of Dr. Carlos Finlay, Walter Reed, and others, he succeeded in stamping out yellow fever by eradicating the Stegomyia mosquito—alias Aedes aegypti.

The reward for this achievement was the opportunity to render greater service in cleaning up Panama, thus making possible the construction of the Panama Canal. Here he had to contend against government bureaucracy at its worst. It is hard to conceive of such stupidity, arrogance, and indifference to human life as was displayed by the seven members of the Canal Commission—not one of whom was a doctor. A less patient and determined man would have given up in despair; but Gorgas stuck to his task doggedly, in spite of the discouraging odds, until a blistering report made by an unofficial messenger of the American Medical Association, followed by pressure in the right place, brought about a change of policy. Gorgas was given a freer hand in carrying out his sanitation measures, and yellow fever was banished from Panama as it had been from Havana.

The latter part of the story deals with the good work done by Dr. Gorgas in World War I, when he was Surgeon General of the Army, and with his triumphal march through Europe.

This book is one of the best pieces of scientific writing by a layman that has appeared in many a moon. It is as fascinating as a novel, and will be enjoyed by medical men and laymen alike.

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